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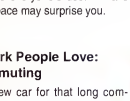

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# TECHNOLOGY NEWS

**Compiled by Cindy Krushenisky**

## T-Ray Vision


How much fat is in that slice of bacon? Is that a bomb in the package you just received? Just how much water is in your laundry detergent? AT&T Bell Laboratories scientists recently created a system that lets them really "see" what things are made of.

The technology works a lot like X-rays, allowing users to see through materials and exposing denser elements inside. The AT&T system, however, uses T-rays, or terahertz (which stands for a trillion-cycles-per-second) electromagnetic pulses. The scientists use laser pulses to create T-rays and transmit them through various objects, determining the objects' components by measuring the amount of distortion in the rays.

For example, the T-rays passing through the lean portions of a slice of bacon are distorted differently from those passing through the fatty portions. Since fat absorbs almost no T-rays, it looks white; meat absorbs almost 25 times as many T-rays, so it looks dark. A processor is programmed to recognize the minute distortions and determine what they are.

T-rays can recognize much more than fat and meat. They can recognize all kinds of materials, including metals and chemical compounds. In fact, many chemicals show strong absorption lines that can serve as "fingerprints" for the molecules.

AT&T is still in the research stage of the T-ray technology. Nevertheless, scientists project many uses, perhaps for biomedical images, material and packaging inspection, or environmental and pollution control.

## Mega Disk

Like PC processing power, computer storage has come a long way. Some early computers came with 40 megabyte (MB) hard drives, if they included a hard drive at all. Today, you can find computers with gigabyte (GB) hard drives, which can store about a billion bytes of information. Temporary storage is making headway as well. Current 3.5-inch diskettes can store about 1.44MB of information. However, you can save only a handful of large files before running out of room.

Imagine being able to store all your files on one floppy diskette. It's an idea being developed by Compaq Computer Corp., diskette manufacturer 3M, and drive manufacturer Matsushita-Kotobuki Electronics Industries (MKE). The three companies want to take 3.5-inch diskettes and "up the ante" to 120MB, about 80 times more storage space than they offer today.

With these mega diskettes, you can keep all your important information in one place, back up your hard drive to fewer diskettes, and spend less time on software installation because you won't have to keep inserting additional diskettes.

Don't worry; your old diskettes won't be obsolete. Drives made for the new 120MB diskettes also will be able to store and read information stored on older 1.44MB diskettes. The new diskettes are expected to be available later this year.

## Flying On A Wing And An ATM


If you're like nearly half of all Americans and use ATMs regularly to get cash or manage your account, there's a new trend appearing in airports that will appeal to you. A number of airlines such as Delta, Continental, and Lufthansa are using ATM technology for self-service ticketing.

This could mean the end of waiting in long lines just to check in and pick up a boarding pass. After you've made your reservation and arrived at the airport, you walk up to an ATM-type machine, touch a few options on the screen, and receive a boarding pass within seconds.

Electronic ticketing is just one ATM application that may revolutionize air travel. One service supplied by AT&T Global Information Solutions may eventually allow passengers to make flight reservations, select their seats, and reserve a hotel and rental car without the help of a ticket or gate agent.

It won't be long until airports let you do it yourself. Several U.S. carriers expect to expand services (now in the trial stage) nationally by this fall.

## High Noon

It's high noon in the high-tech corral. As the two rivals begin their paces, the sun gleams off a silver badge—or is that a silver microchip?

Aug. 5-6, dozens of robots in all shapes and sizes will duke it out for supremacy in the robot world. The International Robotics Foundation and National Products Inc. will present the International Robot Kombat Games at the L.A. Fairgrounds in Pomona, Calif.

Hobbyists, schools, universities, robotics clubs, computer corporations, and other companies can enter their robots to compete in either a full-contact or noncontact competition. In the full-contact games, the robots will battle one-on-one and race through an obstacle course. Robots in the noncontact event will compete in categories such as Most Unusual Robotic Skill, a robot beauty contest, and Running The Maze. For competition rules or advance tickets, call (415) 826-9368.

## CD-ROMs For Rent


The next time you run to Blockbuster Video to pick up a movie rental, pick up a CD-ROM as well.

Blockbuster recently completed a deal with Microsoft Corp. and Compton's NewMedia so that the video rental stores could offer about 50 CD-ROM titles, including programs such as *Compton's Interactive Encyclopedia*, *Microsoft Cinemania*, *Microsoft Magic School Bus*, and Compton's *Complete Multimedia Bible*. All 50 of the titles are now available for sale, while only certain titles are available for rental.

How does the deal get by copyright infringement laws? Ordinarily, you can't sell one set of installation diskettes to a program to more than one person. Court decisions have ruled rental software to be essentially out of the question. But with CD-ROM programs, it's possible that companies may bend the rental rules a little. You don't actually install the program on your hard drive. You install a few files that let your computer access data on the CD-ROM. Once you return the program to the store, you can't continue to use it.

Eventually, we may see CD-ROM software rental on a larger scale. Microsoft has said that the partnership is a test to gauge the demand for multimedia rental titles.

## Zooming Down A Cable Info Highway

The Information Superhighway that many officials foresee would allow us to connect to resources that include video, sound, graphics, and text. But this multimedia material requires faster and more powerful wiring than the telephone lines we now use to get connected. Some companies see the coaxial cable network currently used to transmit television programming as an answer. Others are laying a fiber-optic network for high-speed networking.

They'd better settle on something soon—already the multimedia material is in the works. Time Warner Cable and Time Inc. are creating an online service that would cater to advanced delivery of information. Customers would be able to use Time Warner Cable's fiber-optic and coaxial networks to access all sorts of multimedia news and information from Time. Customers also will be able to access the Internet and other online services from a graphic interface created especially for the service. The service will require a cable modem and likely will charge a monthly fee to cover the hardware, software, and access to the network.

While Time's network is still being developed, another multimedia service is now available. Denver-based Ingenius (a joint venture of Reuters NewMedia and Tele-Communications Inc.) offers the world's first cable-delivered, current-events learning resource, called What On Earth. The service provides six current events stories every day to subscribers in a multimedia format. It uses a cable modem to supply the service to homes and schools nationwide. The cost is about $150 for homes and $100 for schools for a year subscription. For more information, contact Ingenius at (800) 7PC-NEWS. (772-6397)

## Consolidating Communication

How many means of communication do you use? E-mail? Voice mail? A pager? A fax machine? Messages arrive in all sorts of formats, but you've got to check every one of them to keep on top of things. Luckily, several companies are in the process of creating programs and systems that would let you handle all your communications from one front.

AT&T recently demonstrated an integrated messaging prototype combining a number of its devices that would let people access and manage their voice, fax, and E-mail messages, using the format they like best. It promises to make handling messages a lot easier. A banker, for instance, could retrieve a voice message and store it as a file on the computer. Or, as that same banker checks his messages from the airport, a text-to-speech program converts his E-mail messages to voice messages he can listen to over the phone.

Another example comes from PageMart of Dallas and the CompuServe online service, which are working on a similar strategy that would let you retrieve CompuServe E-mail via your wireless pager or special PCMCIA news cards designed to work with portable computers. Subscribers even can define ahead of time what messages they want forwarded to them according to the subject line, sender, or other criteria.

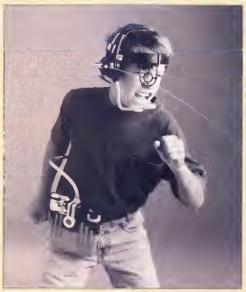
## Tech Shorts

An airbag for your hard drive? Not exactly. Disk drive manufacturers Conner Peripherals, IBM, Quantum, Seagate, and Western Digital have agreed to support a set of reliability specifications that would let computer manufacturers warn users if they are in danger of losing data. Called the Self-Monitoring Analysis and Reporting Technology (SMART), it was designed to provide advance warning if there's a fault in the hard drive so users can take action to protect or back up their data. . . .

Banking and financial institutions can breathe a small sigh of relief, for now. The proposal for a merger of software giant Microsoft with Intuit, the maker of the popular personal finance package *Quicken*, has been withdrawn following U.S. Department of Justice opposition to the integration. Because of the company's power and resources, analysts predicted that Microsoft would capture much of the business and profits now controlled by large financial institutions online. But the research firm Killen & Associates says it isn't over yet. The end of the merger will only lengthen the time frame Microsoft needs to seize the prime electronic financial services (EFS) provider position.

## PRODUCT PREVIEWS

### Look Ma, No Hands



Even children's toys have not been left out of the technological onslaught. The latest development is just what every child thinks he or she needs and every parent dreads: a high-tech water gun that's even easier to aim and shoot.

How do you make a squirt gun high-tech? You add a voice-activation feature that allows the gun to squirt "on command."

CAP Toys of Cleveland, Ohio, recently has introduced such a water pistol that runs on batteries. The Shout 'n' Shoot II requires no pumping or trigger pull. Instead, the user puts on an adjustable headset, flips down a targeting eyepiece, and speaks into the microphone.

In addition to the no-hands feature, the Shout 'n' Shoot II can rotate 360 degrees to hit a target on any side. It moves up, down, sideways, and behind to better "hone in" on a target.

Shout 'n' Shoot II is recommended for children ages 8 and up and comes with a 24-ounce water tank the children wear on their hips. It's now available in toy stores nationwide for about $20. For more information, contact (216) 292-6363.

### Fore!

Whether you want to master golf or you're a first-timer still developing your skills, there's a new product available that lets you practice with your computer and your own golf clubs.

A popular joystick manufacturer, Thrustmaster Inc. of Portland, Ore., has introduced a golf simulation computer product called Pro Play Golf, The Home Course that lets you make your way down a virtual fairway indoors. It's true that computerized golf simulations are not new; there are a couple of companies promoting similar products with sensors that track your swing using an odd-shaped golfing device. The Thrustmaster product's unique characteristic is letting you use one of your own clubs.

Pro Play Golf features a plastic base unit with built-in infrared sensors. You place your ball on the base and give it a whack. The sensors detect your club's speed, face angle, height, and direction of follow-through.

Added software, called the *Swing Analyzer*, tracks your swing statistics and illustrates them on a graph. That way, you can find out what you are doing wrong . . . or right. Then, of course, there's *Practice Mode* software that lets you play a virtual 18-hole golf course depicted on your computer monitor.

The package comes with the base unit, golf mats, foam golf balls, rubber tees, a hanging golf net, and the software. The only wiring required is the cable that connects the sensor pad to your computer. Pro Play Golf was expected to be available in the fourth quarter of 1995 for a suggested retail price of about $800. For more information, contact Thrustmaster at (503) 639-3200.

### Ruling The Roost

Are you a control junkie? NetMedia Inc. of Tucson, Ariz., has introduced a system that puts you in complete control of just about everything that goes on inside your home, from security to air conditioning.

TABS, Totally Automated Building System, is for the high-tech house. The system uses a combination of all kinds of technologies, including such things as infrared remote controls and closed-circuit television. It even uses voice notification and menus to tell you what is happening in the home and to prompt you with choices of what you should do next.

With simple telephone-style wire, the system can link your television, VCR, stereo, appliances, security devices, lighting, irrigation, voice messaging, intercom, or climate control into one centrally located IBM-compatible computer equipped with specially designed home control hardware and software. Tell the system what temperature you prefer indoors, when the security system should activate, and when to turn on the VCR to record a movie.

C. John Schoof, who created the popular LANtastic networking product at Artisoft Inc., runs the company. He claims a typical, modest home can be prewired for TABS during construction for about $250. For more information about TABS, contact NetMedia at (520) 544-4567 or netmedia@rtd.com.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# Dig Into The IFIC

Interested in the latest information on food facts? Nutrition concerns got you puzzled? The International Food Information Council (IFIC) Foundation has the solution, with its introduction of the *IFIC Foundation On-Line*. The Foundation has made its collection of health, food, and nutrition records available for free via CompuServe. On this service, users can access information specifically tailored to consumers, parents, educators, health professionals, or reporters about every facet of food issues.

Each section is highlighted with colorful graphics resembling brochures on the topics available for viewing. If you're interested in consumer information, read "Ten Tips for Healthy Eating" or "Caffeine and Women's Health." Reporters can find special information for writing articles, and later this year, can access audio sound bites from noted nutrition and health experts. Health educators can find teaching tools like "Play it Safe: Food Safety Educational Curriculum." You also can look at the frequently asked questions section for information on caffeine or MSG.

If you're a health professional, you can get answers from "Expert Statements on Food Safety Reform and the Delaney Clause" or put yourself on the IFIC's mailing list. How do Americans feel about food and nutrition? Find out by reading recent Gallup Poll surveys. You even can order IFIC publications from the On-Line service.

The IFIC Foundation On-Line is very user friendly; it takes you through the service without being confusing. Another plus is that the articles are written in an easily understood manner. Just access the sections you're interested in, and the information will flow into your hands.

To access the IFIC's On-Line service, use the address "http://ificinfo.health.org" or "gopher://ificinfo.health.org". If you have an older HTTP 0.9 browser, you may need to use "http://ificinfo.health.org/homepage.htm".

**For More Information:**

*IFIC Foundation On-Line*
International Food Information Council Foundation
(202) 296-6540 ●

# A Lesson In Money

If you're having a baby or thinking about having one, Intuit's *Parents' Guide to Money* can help you plan for this addition to your family. The CD-ROM takes you through a series of helpful hints, stories, and real-life experiences that will give you a good idea about how much raising a family will cost now and in the future.

Since every family's needs are unique, the program leads you through a questionnaire about your financial situation. By telling the program where you live, your age, marital status, and annual income, the program creates personalized worksheets that are tailored to your own financial concerns.

Parents' Guide to Money is divided into chapters, covering topics such as child-care options, choosing the right health care, protecting your family, setting goals, and writing a will or creating a trust. Each chapter includes videos of parents sharing their experiences in planning for a child's well-being, information you need to know about raising a family, and tips on how to plan ahead for expenses.

When first beginning, the program has you fill out a budget, which helps determine your income and fixed expenses. From this initial information, the program's chapters are catered to your needs and interests.


***Parents' Guide to Money* helps you create a monthly budget to determine how you can save for your family's future.**

As you continue through the CD-ROM, you'll input information regarding health care costs, expenses, savings, and many other topics. The initial budget is updated, including these costs and savings.

After completing the program, a final budget is compiled, which tabulates monthly expenses, income, and savings. With this budget, you can get a good idea of how much you should be saving each month to meet your family's needs.

Not only is Parents' Guide to Money a good investment when planning for your first child, but the program can be referred to throughout your life. As your income, savings, and family change, the program's budget can be updated to fit your current status.

Parents' Guide to Money is priced at around $30.

**For More Information:**

*Parents' Guide to Money*
Intuit
(800) 816-8026
(415) 322-0573 ●

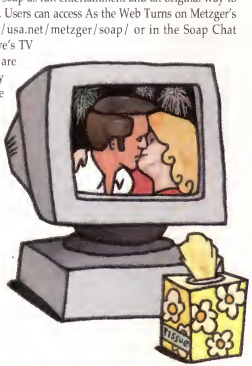
# Spinning Threads In The Web

Metzger Associates, a PR firm in Boulder, Colo., has found a way to announce its customer's products and ideas. "As The Web Turns" is an entertaining online soap opera with its clients' products worked into the plot. Originally designed as pure entertainment for visitors of the Metzger Associates' Internet home page, it recently has been picked up by CompuServe for its Soap Chat section.

The story line revolves around seven melodramatic characters you would find in any truly exciting soap opera. Throw in a little blood, mystery, and passion, and you've got the makings of an entertainment landmark. With its ironic poke at TV soap operas and romantic spy novels, As the Web Turns is a great addition to CompuServe.

As the Web Turns has appealed to its audience in ways that many other public relations mediums simply can't because it's more creative than the usual advertisement. Viewers can access Metzger's press releases about their clients' products by clicking on underlined terms that are cleverly worked into the plot line in a way that doesn't draw away from the story. The plot is designed first, says Lance Jones, writer of As the Web Turns, and then a client is picked out to fit the story line. The mention of products adds a depth of humor to the soap and introduces the information in an inventive and interesting manner. The CompuServe version is, however, strictly for entertainment purposes only—no cross references are available to readers who access it from there. Users must access Metzger's home page for that.

We recommend the soap as fun entertainment and an original way to learn of new products. Users can access As the Web Turns on Metzger's home page at http://usa.net/metzger/soap/ or in the Soap Chat Library of CompuServe's TV Zone. New episodes are added every Monday evening, although the CompuServe version is a week behind the home page version.



**For More Information:**

"As The Web Turns"
Metzger Associates
(303) 786-7000 ●


# Swimming In A Sea Of Memories

Remember the day your first child was born? How about the day you learned to swim?

Now you can capture all your memories on Delrina's *Echo Lake* CD-ROM. This photo album, or perhaps to put it more aptly, memory album, lets you create an individualized book for each member of your family. Inside each book, you can write out a page in their life story. Reminisce with them about memories from years ago. Customize your entries with photos, news clips, videos, artwork, and sound bites. Produce a work of art to treasure for a lifetime—and to pass on to younger generations.

With high resolution graphics and superior sound, Echo Lake truly is amazing. It resembles a computerized journal or diary, except you can do so much more than you can with pen and paper. The program has files of photos, sound bites, media clips, and special pages like birth announcements to add to your pages of text. If you have your own Photo CD or the ability to create your own video and sound files on your computer, combine them with Echo Lake's media drawer to create a customized page in your life history.

Pressed for ideas? Use Echo Lake's Inspirator to prompt you with news clips or questions to get you thinking about special moments in your life. You even can print out a book or package to send to relatives via diskette for them to read and enjoy.

The Windows CD-ROM version is available for about $69.95. The program also is available in Macintosh versions or on diskette for similar prices. If you want to create a truly unique memorabilia item to record your family's lives, Echo Lake is it.

**For More Information:**

*Echo Lake*
Delrina
(800) ECHOLAKE (800/324-6525)
(408) 363-2345 ●

# A Challenge For Software Accessibility

The consumer software industry has been issued a challenge by Broderbund Software and the Alliance for Technology Access. The industry's challenge is to put accessibility issues high on its agenda and to design software that is accessible to people with disabilities.

The challenge comes in response to the thousands of Americans with disabilities who face barriers when using software. Programs without text cannot be used by people with hearing impairments, those without sound can't be used by the visually impaired, and programs with unusual physical demands cannot be used by people with coordination disabilities.

To make software more accessible, manufacturers must make sure programs will work with products that many people with disabilities use in place of the standard keyboard, mouse, or display. These include products that read aloud text on the screen, that let users control the cursor by moving their head or eyebrows, and enter text by speaking directly to the computer. Until now, there were few computer programs that included such assistive devices.

Over the past months, Broderbund Software has been working with the Alliance for Technology Access, an organization that helps to make technology accessible to people with disabilities. The two organizations are developing and testing software programs designed to be accessible for the disabled. As a result of this effort, Broderbund has released a line of products that are compatible with selected third-party assistive technology devices.

The line of accessible products contains more than 15 computer programs, including Broderbund's Carmen Sandiego, *Print Shop Deluxe*, and *Kid Pix* programs. These products include the ability to replace program dialogue with text, to replace text with dialogue, and to enlarge the standard size of print and graphics.

In their efforts to make all new software accessible to people with disabilities, Broderbund has developed guidelines for software design that will be incorporated into all of the company's products. Broderbund plans to release a line of accessible educational software soon.

**For More Information:**

Broderbund Software
(800) 521-6263
(415) 382-4400

Alliance for Technology Access
(415) 455-4575 ●

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The program has been implemented in schools across the country for two years but now is available to consumers for $14.95. 5 A Day Adventures uses animated characters, lively music, and simple questions to keep the full attention of children.

In the Adventures, kids can pick which of five different stores to enter. All of these stores give information on a specific aspect of fruits and vegetables. If children feel they have learned the information in the store, they can attempt a challenge. This challenge consists of five questions based on what has been taught. When kids answer correctly, they receive a token. Each acquired token then is placed on the challenge course. The ultimate goal is to fill the course with tokens.


**In *5 A Day Adventures*, kids can wander down Banana Boulevard and visit the various shops along the way.**

Besides the choices of stores to enter, this game lets kids do such things as listen to a jukebox made up of pop and rap songs sung by the fruits and vegetables or look at a glossary of unfamiliar words.

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# Double Your Hard Drive Capacity With DriveSpace


DriveSpace . . . DoubleSpace . . . *Stacker* . . . *SuperStor* . . . What's the difference? All are disk compression software products. They increase your hard drive's storage capacity by a great deal, depending on what kind of programs and files are saved on your hard drive.

One big difference lies in the availability of this software. Two of these products, DoubleSpace and DriveSpace, are included with different versions of MS-DOS for free. For the sake of this article, we're going to overlook other, more costly products and focus on increasing hard drive capacity with the least expensive, yet effective, disk-doubling software product available today: MS-DOS 6.2's DriveSpace. *(Note that DriveSpace only works with MS-DOS 6.2 and newer.)*

Before we discuss DriveSpace, some background information is needed. Stac Electronics, the company that makes the popular Stacker file compression software product, sued Microsoft, claiming that Microsoft's DoubleSpace (included with MS-DOS 6.0) had some programming elements that didn't belong to Microsoft. One of the results of this action was that Microsoft replaced DoubleSpace with a new, updated disk-doubling product called DriveSpace.

Microsoft's DriveSpace disk-doubling product can actually double the capacity of your hard drive, but there are some things you should know before you do the math. Disk-doubling software effectively performs a conversion process on every file you save to your hard drive. This conversion process removes empty spaces and duplicated data in each file saved, reducing the space that these "compressed" files occupy on your hard drive. This compression process basically works just like the popular file compression products *PKZip* and *LHArc*. For those of you who "zip" and "unzip" files, think of DriveSpace as being a built-in "zipping" of all of your files every time you save them to your hard drive.

## How DriveSpace Works

DriveSpace creates a whopper file on your hard drive where it keeps the program and data files it has compressed. This special file is actually a "virtual" drive because it doesn't exist as a drive, per se. It fools DOS into believing that it's another drive, complete with its own drive letter. DOS can't distinguish between such things, so most brands of disk-doubling software take advantage of this ability to use the virtual-drive-in-a-file concept.

When you install DriveSpace for the first time, it will check your hard drive to make sure you have room to keep this "compressed" file on hand. DriveSpace measures the hard drive space now in use by program and data files, assessing the amount of space

it will need to keep your current information compressed. If your disk doesn't have enough space for DriveSpace to do its work, you'll have to back up some of your files to diskettes, or use some other method, to free up hard drive space.

DriveSpace knows it only can compress files so much. It also knows that the amount of additional hard drive space it can give you is directly tied to the kinds of files kept on your hard drive. For example, if you have mostly program files with the file name extension .EXE or .COM on your hard drive, disk-doubling software products won't be able to "double" your hard drive capacity. The reason is that these .EXE and .COM files were significantly compressed when they were created.

Other kinds of files can be squashed into tiny renditions of themselves. For example, compressed DoubleSpace files may take up as little as 10% of the space they formerly occupied. *Microsoft Word for Windows* picture files and text files can be squeezed down a lot, creating at least 50% more drive space after compression.

This variable compression factor, based on the kinds of files on your hard drive, determines how much extra disk space you'll get after you use DriveSpace. You can do the math to figure out how much extra space can be provided by using disk-doubling software, but you'll probably be surprised at the actual amount you get once DriveSpace is working for you.

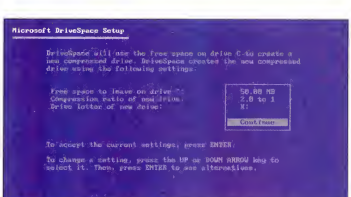
If you're already using disk-doubling software, you may be able to convert to DriveSpace. The most popular, disk-doubling software products use methods that DriveSpace can convert when you install it. DriveSpace will tell you, however, if it can't deal with an existing disk-doubling software product. If DriveSpace informs you that it can't work with a disk-doubling product already installed, you'll need to uninstall the existing one, rendering your drive compression-free.

DriveSpace also will analyze your hard drive to find out what kind of shape it's in. If there are any problems with the storage of existing information, DriveSpace can fix what ails the drive. Be prepared, however, to let DriveSpace and ScanDisk have your drive for an hour or more so these two programs can work their magic.

DriveSpace will ask you questions, such as "How much do you want the disk to be compressed?" While this question seems to have the obvious answer of "maximum," recognize that disk-doubling software introduces a small reduction in your computer's performance if you have an 8088, 286, or 386 PC. The slower the PC, the less you may want DriveSpace to compress/decompress because older PCs can slow down noticeably when disk-doubling software is in use. If you have a 486 or faster processor, don't worry about speed. Elect to use maximum compression when prompted to make such a choice.

## Creating & Swapping Drives

DriveSpace can be tailored to compress your existing files "on the fly" (which means "as you work"), or it can create new drives on your computer, using the available hard drive space in which to work. Let's say that you have a 200 megabyte (MB) hard drive, and you want to double the space to about 400MB. Let's further state that you have half of the current drive free of files. That means that your 200MB drive has 100MB free. You can ask DriveSpace to leave your existing files alone and create another drive, called D:, to hold more software than your uncompressed




**You can change the size of your compressed drive, the ratio of its compression, or the letter designation of the new drive.**

drive. Under this arrangement, DriveSpace would create a compressed drive for you using the next higher drive letter available, such as D: or E:. When DriveSpace is done creating your compressed drive using 100MB of uncompressed hard drive space, you would have a maximum combined hard drive capacity of around 300MB for the combined uncompressed and compressed drives.

You don't have to create just one compressed drive using DriveSpace. You can make as many drives as you have letters in the alphabet, as long as uncompressed hard drive space will allow it. Some people create several small compressed drives rather than one large one. For example, you might want to ask DriveSpace to make three smaller compressed drives that each hold twice the normal amount of files of an uncompressed hard drive. The benefit of this is organization. If you like to keep business programs on one drive while keeping games on a different drive, this is the way to go. In fact, you can theoretically create 20 or more compressed drives using DriveSpace. Regardless of the number of drives you create, you'll still only be able to (at maximum) double your existing hard drive capacity.

When DriveSpace increases your hard drive capacity, it does so by making a new drive that actually lives inside a file that might be named Drvspace.000. The contents of your uncompressed hard drive then will be compressed and dumped into this unmovable file. When you restart your computer after creating this file, DriveSpace will make your computer "see" this new file as though it were drive C:. This new, compressed drive will hold all of your existing software and will seem to be a good deal larger than drive C: was before DriveSpace began its work.

Now that you've doubled your C: drive's capacity, why is there another drive letter on your computer, such as D: or E:? This new drive letter holds all of your computer's startup files and the compressed Drvspace.000 file.

If you have just one diskette drive and one hard drive in your computer, your drives might read as follows before you compress your hard drive:

A: Your diskette drive
C: Your uncompressed hard drive

After you've used DriveSpace to double your hard disk's capacity, however, they might show up a little differently:

A: Your diskette drive
C: Your compressed hard drive, which is really a file on drive D:
D: The contents of your original, uncompressed hard drive, including your delicate system startup files that DOS doesn't let you view under normal circumstances

In the world of disk-doubling software, the creation of a compressed drive and the renaming of the new drive with your original drive's letter is called "drive swapping." Once DriveSpace is through, the contents of your original hard drive will be living in a new drive called drive D:, which will appear to be larger than the original drive's capacity. If you opted to maximize the amount of space that DriveSpace can give you, drive D: will have enough room for the Drvspace.000 file, with a little left over for DriveSpace to use as a workspace for maintaining your new compressed drive.

Disk-doubling software is wonderful and far less expensive than adding another hard drive, but you'll have to make a few adjustments in how you use your computer. Let's talk about these potential "adjustments" before you install DriveSpace on your PC.

## What You See & What You Get

Earlier, we described the process of the actual compression of files and how your gained hard drive capacity depended upon the kinds of files you keep on your system. DriveSpace compresses files as you save them. We call this process compression "on the fly" because, unlike using a program to manually compress large files, DriveSpace runs in the background while you use your PC. DriveSpace also compresses files with varying results based on the type of files you keep. Some files—such as .EXE, .COM, and .DLL files—can't be packed into half of their original, uncompressed space because they were already compressed when they were first created. You may think you have 200MB of hard drive space on your drive once DriveSpace has done its work, but if you store files that have already been compressed (.EXE, .COM, and .DLL files), you may fill the compressed hard drive faster than you might expect.

This strange condition occurs because DriveSpace likes to report the maximum amount of free hard drive space that *can* be free, not the amount that will be free once you install new software on your PC. While we can't tell you exactly how to predict how much free capacity will be true for you, it's best to get used to keeping at least 10% (or more) of your newly gained drive capacity free at all times. This way, you might avoid the inconvenience of running out of hard drive space when installing more software.

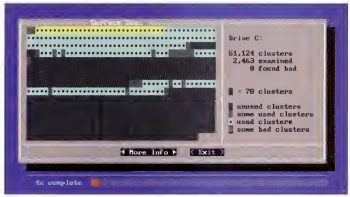
Now that we've talked about DriveSpace's ability to help your hard drive grow and some of the things you'll want to keep in mind while using DriveSpace, let's get DriveSpace up and running on your PC.

## Installation

Installing DriveSpace isn't very complex; you'll only be asked to make a few simple choices. DriveSpace will check your drive for errors, then it will double your disk space and reboot your PC.

Here's how to install DriveSpace:

1. Make sure the current directory is your DOS directory.
2. At the DOS prompt, type **drvspace**.
3. When the program runs, you get an introduction to DriveSpace.




**DOS' ScanDisk helps DriveSpace check the condition of your hard drive before you begin file compression.**

4. Choose how you want DriveSpace to work (all of these settings are optional):
   - Tell how much free, uncompressed space (if any) you want DriveSpace to leave on your hard drive.
   - Choose the compression ratio DriveSpace is to use—2:1 is usually considered to be maximum.
   - Choose the drive letter to be used by DriveSpace.

   *NOTE: DriveSpace displays these settings so you can make a change if you see fit. Novices who aren't versed in how these settings can affect their computer should let DriveSpace choose the default settings.*
5. Now DriveSpace will check your drive to see what sort of shape it's in. If there's any fixing to be done, you'll be told to run ScanDisk before you can continue. If advised to do so, type **scandisk** at the DOS prompt, then start the steps on-screen.
6. Once ScanDisk has given the OK to your drive, DriveSpace will calculate how long the doubling is expected to take, then reboot your PC so you have access to the gained hard drive capacity.

## The Post-Op Look At DriveSpace

DriveSpace also lets you make changes to your compressed drive. You can uncompress your hard drive if you want to. Keep in mind, however, that you may have to create some free space on your hard drive in order to decompress DriveSpace. Let's say you have a 100MB hard drive. You run DriveSpace and then install 180MB of software on the DriveSpace capacity of 200MB. If you attempt to decompress 180MB of software onto your original 100MB hard drive, you'll be told you don't have enough room and that you'll have to erase some files first.

DriveSpace gives you a lot more hard drive capacity, essentially for free. While you might want to use DriveSpace on each hard drive on your system, you also can use DriveSpace to double the capacity of diskettes.

After all is said and done, there's one truth we all must face sooner or later: It doesn't matter how much hard drive capacity you have, you'll always use it and soon clamor for more. ●

*by Robert Mullen*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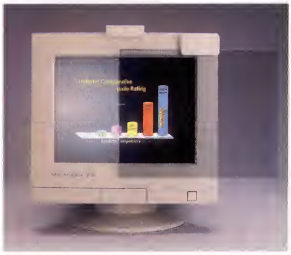

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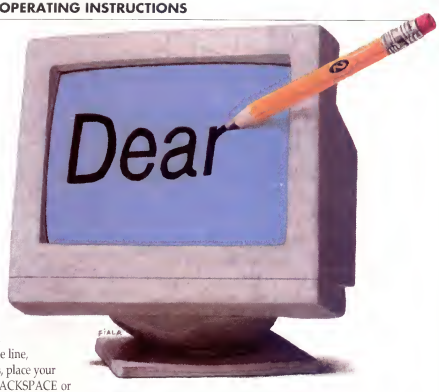



If you need to do simple word processing but don't want to spend the money to purchase word processing software, Windows' built-in word processor, Write, should help you. It's a basic word processor, capable of producing documents of several types, and even lets you include graphics in your documents.

Typing text with Write is the same as with most word processors. You just type, and when you hit the end of one line, text automatically wraps to the next one. To correct errors, place your cursor on the character to be fixed and hit either the BACKSPACE or DELETE key. You then can insert characters by typing at the cursor's location, or **insertion point**. Any other editing is done through the following pull-down menus.

**File.** The File menu offers eight options. By choosing New, you can start a new document. Open lets you open an existing document. Save leaves open the document you're working on, saving the most current version. Save As lets you name a new document and save it, or save an existing document under a new name, leaving the original intact under the old name. (Both of these options leave the document open.)

Print options also are found under the File menu. Print gives you control over how many copies you want to print, whether you want the pages to be collated, which pages you want to print, and the printing quality. You can print to a file or print out the document on a printer. Print Setup lets you select which printer you'll be using and set the printer options to tell your computer how to print your documents.

Repaginate updates the page breaks in your document and offers you the option of confirming each break or adjusting it. Exit closes the document and quits Write; you'll be asked whether you want to save your document before exiting.

**Edit.** The Edit menu lets you paste graphics from other programs, such as Paintbrush, into your document. To do this, copy the graphic from its source to the Clipboard, then choose Paste from the Edit menu in your Write document. The graphic will be pasted in at the insertion point. You can use this menu to move or change the size of the graphic. Commands within this menu also let you cut or copy text in the document and create links with other documents.

**Find.** Find lets you search for specific words, phrases, or pages within your document. You can tell Find to match only the whole word and to consider or disregard capitalization when searching. You also can replace either individual or all occurrences of a word or phrase with another word or phrase.

**Character.** Under this menu, you can change the size and/or style of your text. It only will affect text that you highlighted before opening this menu, though. You can bold, italicize, and/or underline a section of highlighted text, create a subscript or superscript, and change fonts or font size. (Write supports TrueType fonts, a technology that makes the text on-screen closely match what the printed text will look like.)

**Paragraph.** You can change the format of a paragraph so it can be centered, aligned along the right or left margin, or justified. You also can choose between single, 1-1/2, and double spacing, and set indents. Only the paragraph where the insertion point is currently located will be affected.

**Document.** This is the menu that lets you add headers and footers to your document, change the tabs and margins, and turn the Ruler on or off. You can create tabs and adjust margins by using the Page Layout option.

**Help.** This feature will assist you with any questions you have about Write. It works like the Help feature in any other Windows application; you can enter a topic to search for or page through a list of topics.

## Limitations

Write has several drawbacks, compared to major word processors. It has few advanced features or tools, such as word count and spelling and grammar checks, and only produces documents in a one-column format. There isn't a View menu, which would let you see the entire page to find out how your printed document will appear. There isn't a Table menu, either, for creating tables within the document rather than importing them. Instead of toolbars (which feature buttons for easy cutting and pasting, print previewing, and font adjusting) at the top of the work area, there is the Ruler, which lets you control line spacing and alignment.

In spite of these limitations, however, Write is a good choice for people who only need a basic word processor and will meet many of your writing needs. ●

*by Diana K. McLean*

# Basic Training

Because more people are using graphical-based environments as opposed to DOS, *PC Novice* has decided to incorporate instructions for using OS/2, Windows 3.1, and Windows 95 into our former DOS Command Dictionary. We hope you find this new addition useful.


### DOS

To copy a file called Hello.doc from the current directory into the D: drive, you would type:

```
copy hello.doc d:
```

at the DOS prompt and press ENTER. Although you can't copy a file with the same name into the same directory, you can have files with the same names in different directories. For example, you'd type:

```
copy hello.doc hello.crc
```

if you wanted to copy Hello.doc and call the duplicate Hello.crc.

### OS/2

In OS/2, you can copy a file or directory by clicking on the object you want to copy with the right mouse button. Hold down the CTRL key and drag the object to the desired destination. If the destination isn't visible on the desktop, you can use the pop-up menu of the original object. Choose Copy from this menu, and type in the destination for the copy. Press ENTER, and the item will be copied.

### Windows 3.1

Copy lets you copy a file or directory to a different directory in the same drive or to a different drive. To access Copy, choose the Main icon from Program Manager, then click on File Manager.

From File Manager's File menu, choose Copy. A dialog box will appear where you should input the To destination for your copy. The From destination needs to be changed *only* if you don't want to copy the current file or directory. Once you've typed the destinations, press ENTER.

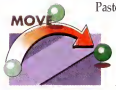
You also can copy a file to the same drive by pressing the CTRL key and using the mouse to drag the object to the desired directory. To copy a file or directory to a different drive, drag it to the new drive without pressing CTRL.

Windows 3.1 lets you copy a file or directory to the Clipboard as well. The Clipboard is used to paste, link, or embed one file or directory into another. To copy to the Clipboard, click on the circle next to Copy to Clipboard and press ENTER.

### Windows 95

To copy a file or directory in Windows 95, you have to choose either the My Computer or Windows Explorer icon. Once you have chosen either icon, find the file or directory you want to copy and make sure the place you want to copy it to is visible. Press the CTRL key, click on the file or directory, and drag it to the desired destination. A copy should be in the new location.

If you don't want to use the shortcut above, you also can copy a file by clicking on the folder you want to copy through My Computer or Windows Explorer. From there, choose the Edit menu and click on Copy. Open the folder where you want to put the copy and, from the Edit menu, click on Paste.




### DOS

The MOVE command lets you rename a file, as well as move it. To rename a document called Front.doc to Back.doc, type:

```
move front.doc back.doc
```

at the DOS prompt and press ENTER. To move Front.doc from the current drive to the D: drive, you would type:

```
move front.doc d:
```

### OS/2

To move an object, hold down the right mouse button and drag the item from the old location and drop it in the new location. In OS/2, you only can move items through drag-and-drop when both the source and destination are on the same drive. To move objects between drives, choose the Move option from the object's pop-up menu.

### Windows 3.1

Move lets you move a file or directory to a new file, directory, or drive. Through Move, you also can rename a file or directory. To use Move, open File Manager and choose Move from the File menu. Type the From and To destinations in the dialog box. If you want to rename a file, type the new file name in the To destination. Once you have filled both lines with path, file, and directory names, press ENTER.

You also can use drag-and-drop when moving files. To move a file or directory on the same drive, press the SHIFT key and drag the object with your mouse to the desired destination. To move the item to a different drive, drag it to the destination without pressing SHIFT.

### Windows 95

In My Computer or Windows Explorer, find the file or folder you want to move, press the SHIFT key, and drag the file or folder to the desired destination. The file then should be moved.

Files also can be moved by clicking on the file or folder you want to move through My Computer or Windows Explorer.

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***—Elmyra; Hermann, Missouri***

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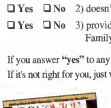


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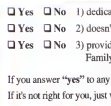



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*—Bill; Metairie, Louisiana*

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"Being a die-hard DOS user, I particularly enjoy your articles on the trusty ol' MS-DOS. Because of your excellent 'walk thru,' I've increased my conventional memory and improved both my config.sys and autoexec.bat dramatically (something not even 'DOS For Dummies' could do for me).

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From the Edit Menu, click Cut, and then open the folder where you want to place the moved file or folder. From the Edit menu, click Paste.

## CREATE A DIRECTORY

### DOS

A new directory can be made by typing:

```
md c:\writers
```

at the C> prompt and pressing ENTER. This command creates a directory called WRITERS in the C: drive.

### OS/2

OS/2 offers two ways to create a new directory. You can open the Templates folder, choose the Folder icon near the top of the window, and drag a copy of the icon to the desktop with the right mouse button. Or, you can open the pop-up menu of an existing folder by double-clicking on the folder with the right mouse button. Once the menu appears, choose Create Another, and a dialog box will appear, letting you name the new folder and choose its location. Once finished, click on the Create button. You then use the new folder's Settings notebook to include or exclude objects from the folder.

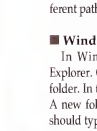
### Windows 3.1

To create new directories in Windows 3.1, choose Create Directory from File Manager's File menu. Once Create Directory is chosen, a dialog box appears. Enter the new directory's name and press ENTER. The new directory becomes a subdirectory of the current directory unless you specify a different path before the new directory's name.

### Windows 95

In Windows 95, choose My Computer or Windows Explorer. Open the folder in which you want to create a new folder. In the File menu, choose New and then click on Folder. A new folder will appear with a temporary name. You then should type the new name and press ENTER.

## DELETE A FILE OR DIRECTORY



### DOS

When deleting a directory, DOS 6.0 uses the DELTREE command, which deletes a specified **directory** (a group of files) and its subdirectories. To delete the WRITERS directory in the C: drive, type:

```
deltree c:\writers
```

at the DOS prompt and press ENTER. DOS will ask if you want to delete the directory and subdirectories. Press *Y* to delete the directory.

For versions of DOS older than 6.0, the DELETE command is more complicated. You first must change to the directory you want to remove. If you wanted to delete the WRITERS directory in the C: drive, you would type:

```
cd \writers
```

and press ENTER. After changing directories, you can delete all the files in the directory by typing:

```
del *.*
```

at the prompt and pressing ENTER. DOS will warn you that all files in the directory will be deleted. Press *Y* to delete all files.

After deleting the files, you need to remove the directory. Change to the root directory by typing:

```
cd \
```

at the prompt and pressing ENTER. Then type:

```
rd \writers
```

and press ENTER. DOS will delete the WRITERS directory.

If you wanted to delete a file called Hello.doc in DOS, you would type:

```
del hello.doc /p
```

at the DOS prompt and press ENTER. The /P switch tells DOS to ask for confirmation before deleting.

### OS/2

To delete a file or directory in OS/2, drag the item you want deleted to the shredder button, which is on the right side of the launch pad. Remember to use the right mouse button to drag the item. OS/2 will warn you that the object is about to be deleted. Click Yes, and it's gone.

### Windows 3.1

You can delete one or more files or directories in Windows 3.1. Access File Manager as described earlier, then choose Delete from the File menu.

A dialog box will show the current file or directory. If this isn't the item you want to delete, type the correct file name or directory. If the file isn't in the current directory, be sure to include the path. Once finished, press ENTER.

When you're deleting a directory, all the files and subdirectories in the directory are deleted. Double-check to make sure you want them erased.

### Windows 95

To delete a file or directory in Windows 95, choose either My Computer or Windows Explorer. Locate the file or folder you want to delete and click on it. From the File menu, click Delete, and the file will be deleted. You also can erase a file by clicking on the file or folder to be deleted and dragging it with the mouse to the Recycle Bin icon. ●

*by Corey Russman*

# PC DOS 7.0, Part II:

## Using The Commands


The operational differences between MS-DOS and PC DOS are slight, as we told you in August's issue during the first part of this three-part feature on PC DOS. The two operating systems set themselves apart through their features, though. Both operating systems use a few different commands, and they offer different add-on programs to enhance their usage.

We'll discuss in detail those features that make PC DOS different during the final two parts of this series. This month, we'll show you how to use various PC DOS commands, focusing on those unique to the operating system. Next month, we'll conclude the series by reviewing the numerous add-on programs included with PC DOS.

### PC DOS Explained

Here's a brief overview of PC DOS. **DOS**, or **disk operating system**, is the operating system used with most IBM-compatible computers. The operating system controls all aspects of your computer. DOS uses a **text-based interface**, in which commands are typed at the DOS prompt, to communicate with users. Some users find an operating system with a **graphical user interface** (GUI), such as is used with IBM's OS/2 or with Microsoft's Windows 95, easier to manipulate because it uses menus and icons to communicate with users. Microsoft Windows 3.1 is a GUI as well, but it's an operating environment, rather than an operating system, because it requires DOS.

PC DOS is IBM's brand of DOS, and PC DOS 7.0 is the most recent upgrade. Most IBM-compatible computers use MS-DOS, which is Microsoft's brand of DOS. IBM is hoping the features found in PC DOS 7.0, along with Microsoft's plan to offer Windows 95 as the next upgrade to MS-DOS, will make DOS users switch to PC DOS.

### Giving Commands

One helpful feature in PC DOS is instant online help for all DOS commands. Just type the command with which you need help, followed by /?, and hit ENTER. PC DOS will display advice for using the command.

Now let's look at how to use various PC DOS commands that you won't find in MS-DOS. *(NOTE: To perform the following examples, type the command and any parameters at the DOS prompt and hit ENTER. A* ***parameter****, also called a* ***switch****, is a secondary command used with the main command to provide additional features.)*

**ACALC.** If you don't have a calculator handy while working in DOS, ACALC can calculate a mathematical problem for you. Use the * (asterisk) for multiplication and the / (forward slash) for division. Here's an example dividing 54 by 6:

```
acalc 54/6
```

After you press ENTER, PC DOS displays the answer. PC DOS will recognize decimal numbers containing up to 19 digits. You can calculate logarithms, square roots, and exponential numbers as well as perform trigonometric functions. To calculate the square root of 1,000, you'd type:

```
acalc sqrt(1000)
```

**BACKUP.** The BACKUP command is PC DOS' answer to the MSBACKUP command in MS-DOS. You can use BACKUP to back up one or more files to a second storage medium. (Most people probably will back up files from a hard disk to a diskette or cassette tape.)

PC DOS also contains an add-on backup program called Central Point Backup, which is accessed through the CPBACKUP command. One important point about the various backup programs: Each backup program has its own restore program that won't work with other backup and restore programs. PC DOS has a unique RESTORE command that goes with its BACKUP command; the Central Point Restore program only works with the Central Point Backup program.

When using the PC DOS BACKUP command, you must specify the location of the files you want to copy and the destination drive. To copy the files from the SALES directory to the diskette in the A: drive, type:

```
backup c:\sales a:
```

**BROWSE.** The BROWSE command lets you view and print a file with the E Editor, which is PC-DOS' built-in text editor. You cannot edit a file when using the BROWSE command. To view the Sales.doc file in the SALES directory, type:

```
browse c:\sales\sales.doc
```

The BROWSE command is especially helpful for viewing system files because you won't make any accidental deletions or additions to the files.

**DCONVERT.** PC DOS uses the *Stacker* program to compress a storage device, such as a hard drive. MS-DOS uses DoubleSpace for disk compression, meaning if you're switching to PC DOS from MS-DOS, you'll need to change your disk compression program. The DCONVERT command changes DoubleSpace

drives to Stacker drives. We'll discuss Stacker in greater detail next month.

**E.** The E command starts the E Editor. You can edit, save, print, and create ASCII text files using the E Editor. You won't want to use the E Editor for heavy word processing, but it's perfect for editing system files. Commercial word processing programs sometimes place hidden characters into the system files, which makes them work incorrectly. The E Editor edits files cleanly, meaning it doesn't add any hidden characters.

Numerous parameters exist for the E command, most of which you'll never use. Some of the useful ones are: **/B**, which loads files in read-only mode (the same as the BROWSE command); **/S**, which lets you edit files normally too large for your computer's memory capabilities; **/I**, which opens the Stacker.ini file; /C, which opens the Config.sys file; and /A, which opens the Autoexec.bat file. If you don't specify a file name or use one of the parameters with the E command, the E Editor will open with a blank file.

To edit the Autoexec.bat file using the E Editor, you have two choices. Either type:

```
e autoexec.bat
```

or

```
e /a
```

E Editor has numerous internal commands, but because you probably won't be using E Editor as your main word processing program, we won't discuss those here. If you want to learn more about E Editor, see Chapter 10 of the PC DOS 7.0 User Guide.

**EJECT.** The EJECT command does exactly what you think it would do—it ejects a medium, such as a diskette, from the specified drive. You probably won't use this command too often, unless you've broken the eject button on a particular drive. To eject a diskette from the A: drive, type:

```
eject a:
```

*(NOTE: Some diskette drives, especially external drives, won't support the EJECT command.)*

**HELP.** The HELP command, which explains how various DOS commands work, gives you a detailed explanation of a particular command through its online Command Reference book, which is one of PC DOS 7.0's best features. To get help on the EJECT command, type:

```
help eject
```

With the Command Reference book, you'll see detailed explanations of every command contained in PC DOS. If you type the HELP command alone, PC DOS will request that you use the VIEW command to access the particular online document you want. (We'll discuss the VIEW command later.)

**JOIN.** The JOIN command lets you connect the directory structure of two separate drives and view them as one drive. One drive, called the **joined drive**, appears as a directory of the main drive. The joined drive usually is a diskette drive. It cannot be a network drive or a CD-ROM drive. Using the JOIN command makes it easy to copy files to and from separate drives or to compare the contents of two directories on different storage media.

When using JOIN, the entire directory structure of the joined drive appears as a directory of the main drive. The joined drive must be in its own directory; that directory must be empty and can't be the root directory. JOIN doesn't work with drives that have been compressed.

To join your diskette drive with your hard drive and place the diskette's directory structure into a directory called DISKETTE on the hard drive, type:

```
join a: c:\diskette
```

*(NOTE: You must create the DISKETTE directory, using the MD command, prior to using the JOIN command.)*

You must use the **/D** parameter to cancel the most recent JOIN command prior to using the joined drive in its original form. To cancel the JOIN command on the A: drive, type:

```
join a: /d
```

**MOUSE.** You'll only need to use the MOUSE command if you install a pointing device after installing PC DOS 7.0 because PC DOS' Setup program will detect your mouse and load the proper drivers automatically. If you need to make PC DOS recognize your mouse with the MOUSE command, refer to your User Guide to ensure you use the correct parameters for the type of mouse you have.

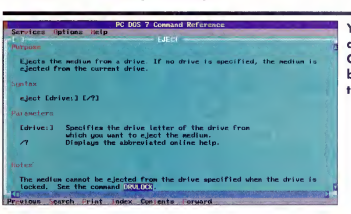
You also can use the MOUSE command to disable your pointing device. Type:

```
mouse off
```

**QCONFIG.** The QCONFIG command is PC DOS' answer to the MSD command in MS-DOS. The command displays technical information about your computer. QCONFIG lets you determine if you have the proper hardware setup to run a particular software program, for instance. It's also important to have the information in QCONFIG handy if you ever need to call technical support because the technician will nearly always ask for your hardware configuration.

There are a few parameters you can use with QCONFIG. The **/D** parameter provides a detailed listing of hardware components; the **/O** parameter places the information generated by QCONFIG in a file called Qconfig.out; the **/I** parameter displays your Autoexec.bat and Config.sys files attached to the hardware listing; and the /P parameter makes QCONFIG pause after each screen of information.

We recommend making a printed copy of the information in QCONFIG using the **/I** parameter. You'll need to use the **/O** parameter to create a file you can print at your




**You can gain access to the online Command Reference book when you use the HELP command.**

convenience. It's important to have a printed copy available in case your computer won't run when you need to call technical support, and you can't access the QCONFIG command. To create a file containing the needed information, type:

```
qconfig /i /o
```

You then can print the Qconfig.out file at your convenience, using the PRINT command.

**RAMBOOST.** If you need a memory management program, as most DOS users do, the RAMBOOST command will provide solid memory management with PC DOS. RAMBOOST replaces MS-DOS' MEMMAKER.

RAMBOOST is a **terminate-and-stay-resident** (TSR) program because it permanently remains in memory as long as your computer is running. The RAMBOOST program not only optimizes your computer's RAM (random-access memory) when you boot the computer, but it constantly monitors the RAM to make certain it's working as well as possible.

If you don't want RAMBOOST to continually monitor your memory, you can disable it by typing:

```
ramboost disable
```

Although RAMBOOST generally works properly without any interference on your part, you may have to determine exactly what portion of memory is occupied by each file, driver, or TSR program. You can view a table showing the memory allocation by typing:

```
ramboost pif
```

**RESTORE.** The RESTORE command restores files saved using PC DOS 7.0's BACKUP command. When using RESTORE, you must specify the drive on which the backed up files are stored (called the **originating disk**) as well as the drive and path on which you want the restored files saved (called the **destination disk**). If you backed up your files on a series of diskettes, make sure you have them in the correct order when you use RESTORE.

RESTORE has many important parameters, including: /M, which only restores files modified since the last backup; /N, which only restores files deleted from the destination disk; /B:, which only restores files modified on or before the date you specify after the colon; and /A:, which only restores files modified on or after the specified date. You'll need to check your computer's DATE command and the COUNTRY setting in your Config.sys file to determine the exact date format required.

To restore all files changed since the last backup, type:

```
restore /m
```

**VIEW.** The VIEW command gives you access to the PC DOS 7.0 online reference documents. The online document you'll use most often is the Command Reference booklet, which gives you advice on using the PC DOS commands. To access the Command Reference, type:

```
view cmdref
```

Another handy online document is DOS Error Reference, which is available by typing:

```
view doserror
```

**XDF.** The XDF (eXtended Density Format) command starts the XDF program, which is a TSR designed to let your computer handle XDF-formatted diskettes. The XDF format lets diskettes store more information, and it's used with PC DOS 7.0 installation diskettes Nos. 2 through 5. Installation diskette No. 1 is a standard-formatted diskette.

You don't have to worry about XDF when installing PC DOS 7.0 because when you run PC DOS' Setup program from diskette No. 1, the Setup program automatically loads the XDF program.

After you load the XDF program, you can use the DIR command to view the contents of an XDF-formatted diskette. XDF has only one parameter, /U, which unloads the XDF program from memory.

*(NOTE: Some regular DOS commands, such as DISKCOPY, won't work with XDF-formatted diskettes.)*

**XDFCOPY.** To make backup copies of your XDF-formatted diskettes, you'll need to use the XDFCOPY command. You can use a standard-formatted diskette as the target diskette because XDFCOPY will format it for XDF automatically. The only stipulation is you must use diskettes that are the same size—the source and target diskettes both must be 3.5-inch diskettes, for instance. You must specify the source and target drives as well. To use XDFCOPY on a computer with just one diskette drive (meaning the source and target drives are the same, and you must swap diskettes when prompted), type:

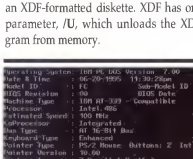
```
xdfcopy a: a:
```

## Similar Commands

What are some familiar MS-DOS commands you won't see? EDIT, FASTHELP, MEMMAKER, MSBACKUP, MSD, QBASIC, and SCANDISK are all MS-DOS commands that aren't included with PC DOS. Many have been replaced by unique PC DOS commands that perform similar functions. *(NOTE: Depending on your PC DOS installation, some unique MS-DOS commands will remain available.)*

While the previous list of unique PC DOS commands appears long, when compared to the entire list of available DOS commands, PC DOS and MS-DOS are fairly similar in their command usage. PC DOS 7.0 really attempts to differentiate itself from its chief rival with its add-on programs, though. We'll discuss those programs in the final installment of this series next month. ●

*by Kyle Schurman*




**The QCONFIG command provides detailed information about your computer.**

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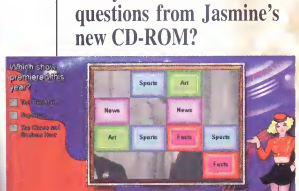


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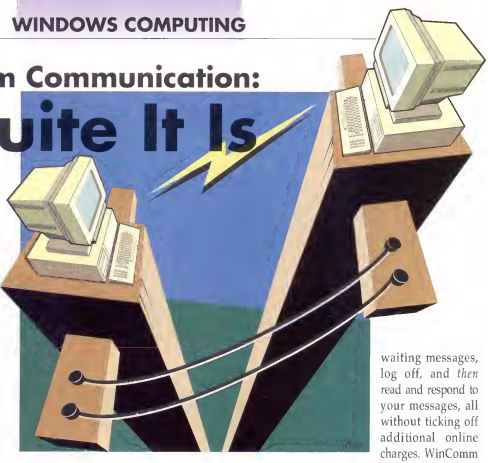


Trying to choose between Delrina's *Communications Suite* and Datastorm's *Procomm Plus* is the reason why so many PC novices shake their heads, throw up their hands, and tuck themselves into a fetal ball of software confusion. It's like trying to choose between vanilla and chocolate. Captain Kirk or Captain Picard. "Die Hard" or "Die Hard With A Vengeance." They're both great, they're both the same, and they're both different.

Case in point: Both all-in-one telecommunication packages can send and receive faxes, connect to online services, and manage E-mail. Both possess an almost overwhelming treasure of smooth, easy-to-use features. And both have a suggested retail price of $179. Like two mythic heavyweights, each new release pushes the envelope of technology, forcing the other into a vicious cycle of electronic one-upmanship.

Granted, it would be much simpler if one program simply blew away the other in features and functionality. But that's not the case. Before you start reaching for your knees, however, know this: You can't make a wrong decision. Both packages deliver first-class performance. They just do it differently. In this article, we'll compare these telecommunications giants and help you decide which one offers the sweetest combination of features for you.

## To Suite Or Not To Suite

Here's the first major difference: Delrina's Communication Suite is actually two programs—*WinFax PRO* and *WinComm PRO*—housed under the same roof, which on the surface appears to be cheating. Furthermore, the WinComm PRO module is actually a revamped version of *HyperAccess*, a telecommunications package that Delrina licenses from Hilgraeve.

Even though a single installation program sets up WinFax PRO and WinComm PRO, each is launched from a separate icon in Program Manager. Once activated, you can summon one from within the other. (Both programs also are sold separately.)

Datastorm, on the other hand, actually delivers an all-in-one package with Procomm Plus. You don't need a separate module to send faxes. Data and fax communications share everything like a unified phone book that stores data, fax, and voice numbers individually and in groups.

Both products are easy to install, sport an intuitive graphical design, and can automatically detect and set up communications. Procomm Plus, however, goes one step further with the ability to identify your **COM ports**, modem type, and baud rate. (A COM port is a serial communications port, located in the back of your computer, that is connected to your modem. All fax and modem transmissions are sent from the software in your computer, through your COM port, and out through the telephone line to its online destination.) Another intelligent feature automatically determines whether Procomm Plus needs to dial access codes for outgoing calls.

An even bigger difference is Procomm Plus' mail managers for CompuServe and MCI Mail. Both Datastorm's and Delrina's products come with canned scripts for logging on to popular services such as CompuServe, GEnie, Dow Jones, and MCI Mail. Procomm Plus' superior ability to send, receive, and store messages and files, however, gives you the freedom to chuck dedicated front-end programs for MCI Mail and CompuServe. Using completely automated scripts, you can log on, download waiting messages, log off, and *then* read and respond to your messages, all without ticking off additional online charges. WinComm PRO lacks similar tools for managing online sessions and E-mail.

Creating a new directory in either Procomm Plus or WinComm PRO is a snap. Most of the features in both products can be accessed with a quick mouse-click. Procomm Plus offers more clever enhancements that just make it a pleasure to use. (They don't make transmissions any faster, though.) For example, a Rapid Dial directory stores your favorite or most frequently called numbers; you also can configure your right mouse button with frequently used commands. (WinComm PRO uses the right mouse button to call online help.) Procomm Plus displays the description of a button's function when you pass your cursor over the toolbar. For laptoppers and desktoppers with internal modems, both programs display a set of modem lights that let you know what's going on.

Procomm Plus' scripting language is more powerful, but both products make quick work of recording keystrokes, memorizing passwords, and compiling scripts. Though Procomm Plus offers more transfer protocols, chances are you'll never know they're missing in WinComm PRO.

If you're constantly downloading files and worried about computer viruses, WinComm PRO has a distinct advantage over Procomm

Plus. A built-it virus checker can scan and detect 300 viruses when downloading files.

If you're thinking about surfing the Internet, Delrina's Internet Messenger makes your purchasing decision easy. Instead of fumbling around with complex configurations, enter an area code, and WinComm PRO displays more than 30 listed providers. Mouse-click again, and the Internet Messenger automatically dials and registers you. Procomm Plus does offer TCP/IP support for network and serial connections to the Internet as well as an FTP client.

## Just The Faxes

Even though the WinComm PRO portion of Delrina's Communications Suite serves up just about every telecommunications feature you'll ever need, it still loses out in a feature-by-feature comparison to Procomm Plus. The WinFax PRO portion, however, absolutely crushes the pint-sized fax and send features served up in Procomm Plus.

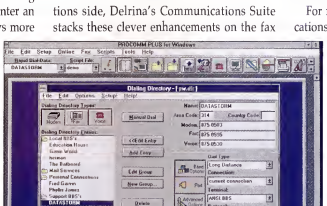
Both products let you send or print a fax and maintain a log of sent and received faxes. You also can hook either Procomm Plus or WinFax PRO directly to any Windows application by installing a special fax driver as a printer option. For example, in *Microsoft Word for Windows*, WinFax PRO becomes one the choices under the File menu, listed right after Print.

Standard features in both products include: fax viewer with zoom options, scheduler for unattended fax transmissions, the ability to forward faxes, prepackaged cover sheets, and a cover sheet editor to create and design original cover pages. WinFax PRO comes with more prepackaged cover sheets, its cover sheet editor is more robust, and fax viewer has more options.

Both also let you send and receive faxes in the background while you're working on something else. Truth be told, though, this feature slows performance to a crawl, so you'll want to stop whatever you're doing when either fax module is in action.

Because Procomm Plus' fax and telecommunication modules are truly integrated, Procomm Plus offers fax-on-demand. Utilizing the package's host mode on its telecommunications side, authorized users can call in to your computer and request faxes. This is a terrific feature for businesses that need to send out repetitive and standardized information—though it's best used on a standalone PC.

And just as Procomm Plus dishes out added convenience features on the telecommunications side, Delrina's Communications Suite stacks these clever enhancements on the fax portion. For example, a Send Failed Pages Only option lets you send only the pages that didn't make it through the first time. A virtual sheet of paper feeding through a fax machine graphically displays and monitors the progress and percentage of each page sent.




***Procomm Plus* gives users a place to enter frequently called numbers for quick dialing.**

WinFax PRO also has a unique library of stamps that can be applied to any fax image, letting you personalize documents with a company logo, a scanned signature, plus standards like "DRAFT" and "CONFIDENTIAL". WinFax PRO comes with an impressive assortment of annotation tools that can be used to clean up received faxes or to add additional information to them.

Delrina also offers a special fax broadcast service that, for an additional fee, can send a fax to up to 500 people. Instead of making the transmissions yourself, you send the fax to the Fax Broadcast Distribution Service with a list of recipients; they blast it out when and how you want. A quick mouse-click automatically connects you to the service and signs you up via a toll-free line. Charges are billed through your credit card.

When it comes to the care, feeding, and management of faxes, both products share many of the same features, but WinFax PRO provides more features and functionality. In addition, WinFax PRO is easier to use, more intuitive, more sophisticated, and certainly better suited to the novice user. (For more information on WinFax PRO, see the article "Fax Software Anyone Can Love" in this issue.)

## Suite Conclusion

For managing E-mail and online communications, Procomm Plus is a clear-cut winner. Procomm Plus is also your only choice if what you're looking for is a truly integrated fax and modem communications package—especially if faxing isn't your primary consideration.

For most everyday telecommunication needs and navigating the Internet, you should choose WinComm Plus. For unmatched fax management including compiling, sending, and receiving, Delrina's Communication Suite is your sweetest deal. ●

*by Michael Cahlin*

### For More Information:

*Procomm Plus 2.0*
Street Price: $135
Datastorm Technologies Inc.
(800) 315-3282
(314) 443-3282

*Delrina Communications Suite*
Street Price: $110
*WinComm PRO*
*WinFax PRO*
Street Price: $75
Delrina Corp.
(800) 268-6082
(408) 363-2345

**System Requirements:**

***Procomm Plus***—IBM-compatible computer with 4MB of RAM, 8MB of hard disk space, Windows 3.1 or newer, and a compatible modem.

***Delrina Communications Suite***—IBM-compatible computer with 4MB of RAM, 11MB of hard disk space, Windows 3.1 or newer, and a compatible modem.

***WinFax PRO* and *WinComm PRO***—IBM-compatible computer with 4MB of RAM, 4MB of hard disk space, Windows 3.1 or newer, and a compatible modem.

# E-Mail Connection

## Put All Your Messages In One Basket

Owning several E-mail accounts can lead to more tangled confusion than a switchboard telephone. If messages are shooting at you from all corners, *E-Mail Connection* could be the answer for sorting it out.

E-Mail Connection is an advanced electronic mail application that routes messages sent to different addresses on different services to a single program on your computer. Version 3.0, which was scheduled for release in late August, supports most popular E-mail providers, including America Online, CompuServe, Prodigy, cc:Mail, MCI Mail, and Internet SLIP/PPP accounts. Once everything is set up, E-Mail Connection can dial up each of these providers and download all your mail into one window. The program also can be set to periodically check your various services automatically.


### Feature-Filled

E-Mail Connection has all the messaging features users have come to expect. An address book keeps those cryptic, @-filled code names at the ready; easy-to-understand buttons let you compose, reply, and forward mail; and a search function will look through all the new and archived mail to find that important message.

Along with the basics, E-Mail Connection has a few extras. For instance, the program will monitor all incoming mail and throw new senders' addresses into the address book. This is a good way to build your address book without ever typing in the information yourself. In E-Mail Connection's Preferences menu, you can set the program to remember not only the sender but all recipients as well.

A spell checker keeps typos out of the mail you send, and filing your incoming messages is as easy as a mouse-click, thanks to In box rules. (These are guidelines set by the user that E-Mail Connection follows.) Rules tell the program to look for all mail from a certain sender or containing a key word or phase and move them to a specific folder. You might have individual folders set up to store letters from the people who write you the most, for example, or folders containing messages about different projects. After you read the latest batch of mail from the In Box, you can send the messages to their appropriate folders for easy retrieval later.

A well-designed interface makes navigating the wilds of electronic communication simple. Large control buttons at the top of the screen access the most frequently used commands, such as Compose A New Message. The address book is alphabetically arranged, with tabs for jumping quickly to specific letters and search capabilities if you don't remember Bill's last name. Icons for bringing up the In Box, Out Box, and your mail folders are stacked at the side of the screen.

Installing E-Mail Connection takes only a few minutes when following the included instructions. Configuring the program takes a little longer, depending on how many E-mail accounts you want to keep track of. For each of your E-mail addresses, you must type in your user ID, password, and other information specific to that service. If you're using a modem connection, you'll also have to point E-Mail Connection to your local-access number. One nice touch is that you don't have to go digging through your old software for the correct phone access numbers. All you do is pick from the list of possible numbers for each online service already in E-Mail Connection's database.

### Mail Call

Once you've told the program who you are, you can hit the Connect button to retrieve your mail at any or all of your services, or you can schedule connections for each service as often as every few minutes to once a week. Then all you have to do is watch the mail roll in.

While E-Mail Connection is an attractive way for anyone to send and receive E-mail, it is geared toward those who have more than one E-mail account. Most E-mail services provide their users with decent interfaces of their own that work perfectly well if that is your sole address. E-Mail Connection has a few features that probably aren't found on most E-mail readers. But these conveniences come at a price: In this case, it means paying about $42 for E-Mail Connection.

For the average home user with a single E-mail address, buying this program probably isn't worth it—especially as competition drives the different services to continue upgrading their own interfaces. On the other hand, for those swamped by dozens of messages each day from three or four providers, the benefits fast begin to outweigh the costs. ●

*by Alan Phelps*

**For More Information:**

*E-Mail Connection*
ConnectSoft
(800) 234-9497
(206) 827-6467

**System Requirements:** An IBM-compatible PC, Windows 3.1, 4MB of free hard drive space, 4MB of RAM, and a connection to an E-mail service provider through a modem or network.

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# It's In The E-mail


Checking your mail no longer means just running out to the mailbox to see if you got a letter from Grandma or a bill from the record club. Mail has been electrified by the advent of computers.

It's a phenomenon that's catching on around the world. People are communicating via their computers anytime, anywhere, and they're doing it now more than ever.

Why is E-mail all the rage? It brings us a step closer to a paperless office where we store memos, documents, and letters electronically. It lets us send our boss an update on a report or keep in touch with far away family and friends for the cost of a local telephone call. It puts at our fingertips the ability to communicate with people and obtain information on the other side of the world.

Let's explore the attraction of electronic mail and how you can get on board.

## What Is E-mail?

Simply put, E-mail is a kind of correspondence you can directly send and receive on your computer.

E-mail can be a quick little note. You might use it to say "We received your message; thanks for your timely response." Or, it can be a lengthy letter to your significant other, pledging your undying love.

Think of it as a computerized version of the mail you send and receive through the Postal Service, otherwise known as snail mail. When you send E-mail, however, there's no need for envelopes, stamps, or the Postal Service altogether. With the click of the Send button, you can dispatch a message to one or more recipients in an instant. The message reaches its destination in a matter of minutes, rather than days, and remains safely in the recipient's mailbox until the message is read.

Just as you tuck little extras in an envelope, you can affix all sorts of extras to your E-mail. Perhaps you want to send an important spreadsheet to a co-worker, or your child wants to send a picture he drew on the computer to Grandma. Just attach the spreadsheet or image file to the E-mail message and send it.

That little extra doesn't even have to be a text or image file. You can scan photographs into the computer and attach the electronic versions to your letter, allowing you to send the great snapshots you took on your last fishing trip to an old fishing friend. You even can attach a sound file to a note. That way, you can wish your mom a happy birthday, singing with a voice only a mother could love.

## Your On-Ramp

Electronic messaging can be used by just about anyone, anywhere, but first you need the right hardware and software combination.

If you want to send messages to other computer users around the world, you need access to some kind of **online service**, such as America Online, CompuServe, or Prodigy, or to the **Internet**. An online service is a dial-up service that lets users access informational databases and communications features so they can research topics and communicate with others. The Internet is the mother of all online services, loosely connecting government, business, education, and ordinary people who have access to the system. Or, you can "post" messages on an electronic bulletin board system (BBS) where other BBS users can read your messages and respond.

In addition, there are specialty services specifically set up to manage electronic mail. For example, with an account on a service such as MCI Mail, MCI's Friends And Family Mail, or AT&T Mail, you can send E-mail to other

subscribers, send E-mail through the Internet, or fax your messages.

To use these telecommunications services, all you need is a **modem**, which lets your computer communicate with other PCs over telephone lines, and the appropriate software. Online services and some specialty E-mail services supply their own software interfaces you install on your computer. To access the Internet, you can obtain a shell account from an Internet access provider, or you can pay a premium for a direct Internet connection. If you work for the government or are a student at a university, you might get this access for free. Otherwise, most online services now allow access to Internet sites and E-mail via the Internet.

"Online" E-mail isn't the only form of electronic mail. If you are computing at work, you also may be able to send E-mail through an intraoffice electronic mail system. *Microsoft Mail* and Lotus' *cc:Mail* are some of the most popular office E-mail systems. Here you can send messages, memos, documents, and files to co-workers, managers, etc., without ever leaving your desk. And if the office system has a "gateway" to the Internet, you even can send messages from your workstation to someone halfway around the world.

## Pieces And Parts

Although E-mail seems to be in a world of its own, it retains much of the lingo we all have come to know and love.

Take, for example, when you receive an E-mail message. Just like at your home or office, your message arrives in an **inbox**, or mailbox. Almost all E-mail services signal you when you receive mail. Some put a little envelope in a mail slot, some raise the flag on an on-screen mailbox, and some produce an audible message when you start the program. When you open your inbox, the sender's name or identification number appears, along with a subject line to let you know what the message is about.

There will be numerous occasions on which you'll need to keep E-mail on hand for future reference, but you don't want to print and store it. The majority of online services and office E-mail systems let you create **folders**, in which you can save E-mail. These folders are reminiscent of the manila folders you probably use at home or in the office to hold documents. Instead of paper reports and letters, you could use the electronic folders to store corporate E-mail, E-mail about a specific project, or E-mail from a family member.

When you're through reading your messages, some services include **wastebaskets** or deleted mailbox folders that "trash" your mail when you're done reading it. Most are safe wastebaskets, however. They don't completely delete the messages until you empty the basket or exit your E-mail program. If you accidentally delete a message that you later need, you may be able to retrieve it.

You'll find familiar terminology when you send messages, as well. After you compose messages, they either are sent immediately or copied and stored in an **outbox** until you are ready to send them. Some online services let you compose messages while you are not connected to the service and then store them in your outbox until you can go online and send them. This is a handy feature that saves you online time and charges. (See "E-mail Basics In Online Services" in this issue.)

Another handy feature is the **address book**. Most E-mail systems let you keep a running tally of all your contacts and their E-mail and snail mail addresses, as well as other applicable information about who they are or how to contact them. It's the little black book of the Computer Age.

If you are dying to know whether the recipient has read your message and when they read it, you can add a **receipt** to the message. Select this option, and when the recipient gets his or her message, you will be sent a receipt E-mail message containing the time the message was read. If your service doesn't offer the Receipt option, perhaps it offers an alternative. For example, America Online lets you Check Mail You've Sent. This feature lets you read your message again and check when the message was opened by the addressee.

If your message is extremely important, many services and office E-mail systems let you assign E-mail a **priority** signal. Some may use an exclamation point, a flaming envelope, or a numbering scheme. It's a good way to get vital messages noticed immediately.

## Getting Where It's Going

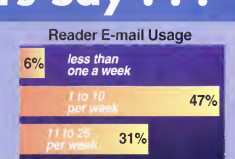
Although sending an electronic message seems relatively simple from the user's end—click a button, and it's whisked off to its

# PCN Readers Say . . .

How are other *PC Novice* readers using E-mail? About 100 readers replied through the Fax Feedback in our July 1995 issue to let us know they were using E-mail and to tell us what they were up to. In fact, you'll find their stories and examples in several articles throughout this issue.

Of the readers that have E-mail accounts, more of our readers are using E-mail at home than at work. We found that about 78% use E-mail at home while 57% use E-mail on the job.

What is the medium of choice? More than half of the respondents, about 59%, used some sort of online service, such as America Online or Prodigy. About 48% sent E-mail via the Internet, 32% used some sort of internal E-mail system at work, and 28% corresponded with other users through Bulletin Board Services (BBSes).




We also learned that they were sending a moderate to heavy amount of messages through this electronic medium. Almost half, about 47%, of our respondents said they sent about one to 10 E-mail messages per week. A small percentage, only 6%, said they used E-mail more than 50 times per week. On average, *PC Novice* respondents sent about 15 messages per week—a little more than two a day. ●

recipient—it goes through a fairly complicated process of routing and standards to get where it's going. Acronyms like X.400 and TCP/IP help transport your digital message from one site to the next, keeping all the data intact.

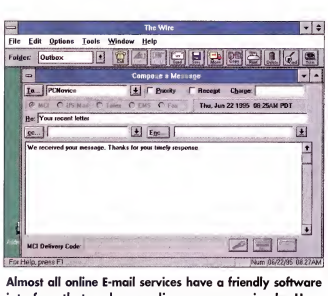
Fortunately, you don't need to worry about all that. Your biggest concern is to make sure your message is properly addressed, especially on the Internet. If you incorrectly address an Internet message, it simply floats out to Never Neverland.

Every type of service has its own way of formulating addresses. Office E-mail systems may use the employee's name, or first initial and last name. America Online lets users create their own user screen names. For example, someone named Jim Smith might use the screen name JSmith. CompuServe, however, assigns users a series of numbers separated by a comma, such as 12345,6789.

The Internet has its own complicated address system made up of specially coded domains, periods, and @ (at) signs that indicate who the message is addressed to and where the addressee is located. For instance, an Internet address might read: williams@physics.ucla.edu. (For more information about sending Internet mail, see "The World's In Your Hands . . . With The Internet" in this issue.)

Whenever you send a message from one online service to another, or (if your office has an online gateway) from your office network to an online service user, you are using the Internet mail system. For example, users of CompuServe could send a message to someone at America Online by using the address guideline screen_name@aol.com.

Once you learn the basics of E-mail addressing, there's nothing to it. You only need to know the user's identification or screen name and their "zip code," so to speak. If you aren't sure of someone's exact ID, most online services and office networks have a sort of member directory through which you can search. Some even let you search for aspects other than a person's name, including their hometown, hobbies, or age. While you are searching, you may run across a long-lost relative or old college buddy. On the Internet, however, you're on your own. So make sure you get the proper address the first time—there are no receipts with this service.




**Almost all online E-mail services have a friendly software interface that makes sending messages simple. Here Swfte International (800/237-9383 or 302/234-1740) gives MCI Mail a graphical interface with *The Wire*.**

## The Sky's The Limit

What are you going to do with an E-mail account once you have it? You'd be surprised at the things you can send via E-mail.

Businesses thrive on E-mail. Consider the option of communicating with co-workers or managers through a short electronic message, without ever leaving your desk. If you want to send them a report or file you've been working on, just attach it to the message. Send a message to a business contact or customer in another time zone. The message won't get lost in a pile of memos but will remain safely in an inbox until the recipient has time to read it.

Office E-mail, however, doesn't have to be all work. Nancy Plath of Lincoln City, Ore., says she and her co-workers send paperless birthday cards, adding clip art to the message. The message is forwarded around the office so it can be signed and noted by each employee before it reaches the recipient.

E-mail can bolster the home businessperson. Priscilla Messinger, an Avon representative in Holden, Mass., says she uses E-mail to take some customers' orders. E-mail can be helpful finding a job. Some users are finding that it's an easy way to send copies of their resume to firms throughout the country. E-mail also can be a useful tool to help with all kinds of odd jobs. James Stewart of Lake Jackson, Texas, used E-mail to hunt down snail mail addresses for his wedding invitations. He sent E-mail to find relatives' addresses, as well as the addresses of his poker buddies, whom he talks to regularly via CompuServe.

Some users employ E-mail as a means to advertise their products, services, or opinions. However, the idea of inboxes or bulletin boards being littered with junk mail is getting a negative reception. Businesses who dump advertisements in random mailboxes will most likely find themselves "flamed" to a crisp with negative E-mail. (See "Online Feuds Fuel Flames" in this issue.)

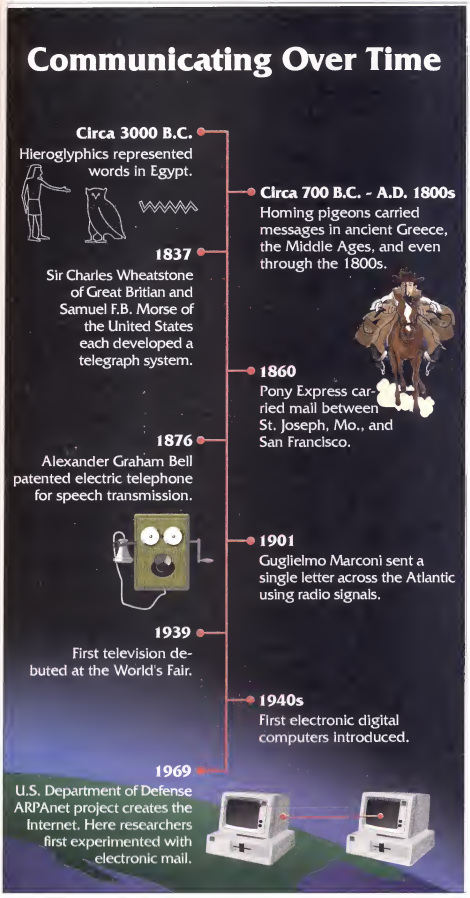
You don't have to be a real socialite to reap the benefits of E-mail. It doesn't require all the pleasantries of phone conversation, asking about the wife, kids, and weather before you get to the crux of a discussion. However, if you thrive on the pleasantries, you also can get your fill.

Average consumers are finding that E-mail can help them keep in touch with family and friends. In addition, a quick E-mail sometimes can create a life-long friendship. Take, for instance, Betty Follett of Harrisburg, Penn. She posted a message on a Prodigy bulletin board, promising to assist other users in training their pets. Ron Conlon, a Prodigy subscriber in Hawthorne, Calif., replied. After Follett helped Conlon train his new Rottweiler puppy through a stream of E-mails, the two became good friends, Follett says. Now they discuss their problems via E-mail and exchange birthday gifts and dog photos. Sometimes it can help to find long-lost relatives. Francis Post of Bellingham, Wash., says he found a cousin in Wisconsin he never knew existed. A few days after corresponding with another cousin online, he received an E-mail message from her sister, whom he had never met.

E-mail also has turned out to be a real electronic matchmaker. Paul Gangi, product planning manager of communications products at Prodigy, says a number of couples have met and gotten married after corresponding through E-mail—without previously meeting face to face.

## Communicating Down The Line

It's doubtful that advertising and matchmaking were what researchers had in mind when working on a 1969 Department of Defense project that started this whole phenomenon. They were simply testing a computer network, which we know today as the Internet,




that could continue to function and let people communicate in the event of a nuclear war. They discovered that an online network had great potential as a communications tool.

When you're right, you're right. Today, America Online users send 1.5 million messages a day, compared to less than half that number a year ago. The numbers continue to grow rapidly.

The world of communications is heading toward E-mail. If you're in tune with what's going on with technology and government, you've probably heard about the National Information Infrastructure (NII). The president, vice president, and many other government officials are promoting the building of an Information Superhighway that would allow us to send E-mail to doctors, researchers, professors, businesses, government officials, and other citizens around the world. In fact, with the high-capacity wiring telecommunications companies are laying throughout the United States, we will be able to do more than just send textual messages. We may be able to communicate online through audio, graphics, and video.

Does this mean the postal system will go the way of the Pony Express? Not likely. For the foreseeable future, according to E-mail analyst Karl Wong of the research firm Dataquest, people still tend to want hard copies of anything that is important, anything that has any legal ramifications. For instance, people still want to physically sign a piece of paper or receive official papers through snail mail. People aren't as trusting unless they have something tangible in their hands.

E-mail has replaced much of the casual writing that people are doing, including communicating with family and friends. In fact, it probably generates more communication than snail mail and telephone calls, says Michael Finney, product manager of CompuServe mail. Maybe you will run across a friend online you haven't talked to for years, or perhaps you'd be more willing to contact someone you wouldn't have previously because you can get right to the point in E-mail without all the small talk.

But it's inaccurate to say E-mail is the end of snail mail. There are things you simply can't send in digital form. Sure, you can scan images and record sounds, but you can't digitize a birthday present or Christmas fruitcake. ●

*by Cindy Krushenisky*

# E-mail Basics In Online Services

You learn one, you've learned 'em all. That's the key concept behind learning to send E-mail in the major commercial online services. Though the interface changes, the essential steps of composing messages, addressing, and attaching files are fairly consistent. Here's a guide to the steps that will keep you in touch in the online community.

## America Online

To access America Online's (AOL) E-mail service, click the Post Office icon in the Main menu. From Post Office, follow these steps to send an E-mail message:

1. Click on the Compose Mail icon.
2. Type in the To destination. This commonly is a name or alias such as "Jay Smith" or "JSmith."
3. If you want to send a duplicate copy to another subscriber, type this address in the CC: destination box.
4. Type in the Subject of your message. This usually is a quick one- or two-word description of the message, such as "Saying hello."
5. Type your message in the File box.
6. Click on the Send icon. (The Send Later, Attach A File, and Address Book icons will be discussed later.)
7. The computer will display a message announcing your mail was sent.

## Sending Later

America Online also lets you send a message at a later time. For example, if you composed a message to a friend in Japan, you may want to send the message sometime during the night when phone rates would be lower. The times when your computer automatically goes online are called **flash sessions**.

To send a message later, follow these steps:

1. Compose your message as described earlier.
2. Once you have entered your message, click on the Send Later icon. The computer will display a screen saying your message was saved for future delivery. If you haven't assigned flash sessions for AOL, continue with these steps.
3. Choose Flash Sessions from the Mail menu. Flash Sessions lets you designate routine times when your computer goes online automatically. During this online time, your computer can send messages, check your new messages, or retrieve documents.
4. From this menu, you can Schedule Flash Session, Activate Session Now, Select Names, or Walk Me Through. For our purposes, choose Walk Me Through. Follow the prompts, letting AOL know when you want to go online and what functions you want the service to perform.
5. When finished, exit Flash Sessions. Your computer should go online at the flash session time and send the designated messages.

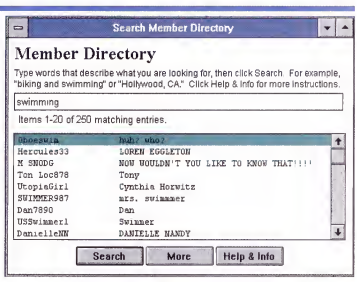
## Composing Offline

Creating a document offline is a good idea because you can save online charges while you're typing. You can send E-mail you created offline in two ways, either by attaching a file you created in another program or by composing the message while signed off and sending it through a flash session.

When attaching an existing file to E-mail, compose a message as described earlier. Click on the Attach icon. From there, choose the document you've created by selecting the drive, highlighting the file name, and clicking OK. The document will be attached to your message. Click on Send to deliver the E-mail with the attached file.

To send a message through a flash session, open the AOL interface, but don't sign on. After AOL's menu appears, create a message by choosing Compose Mail from the Mail menu. When finished, click on Send Later. Sign on to

**America Online will let you search for a subscriber by name, location, or hobby. Note the similarity to the same feature in other services.**



AOL and choose Flash Session from the Post Office menu. Click on Activate Session Now, and the mail you created offline should be sent.

## Addressing Messages

Because AOL subscribers often choose a user name different from their real name, you may not always be sure of a subscriber's address. Remember that the To destination for your mail must include the exact account address. If the address is typed incorrectly, AOL may say your message has been sent, but the message will not be received by the intended person.

To make addressing easy, AOL includes a list of all its subscribers and their addresses. To access this directory, choose Member Directory from the Members menu. Then choose Search the Member Directory.

Enter the desired search term, and AOL will search its directory for addresses of subscribers who meet your search term. The search term can be a name, hometown, state, or hobby. You can view information about a subscriber by double-clicking on the name.

If there are people you send messages to frequently, include them in your personal address book. Simply click on the Address Book icon in Compose Mail, then choose Modify. From there, you can add the addresses.

## Checking Messages

You may want to check up on the messages you've sent to make sure people are receiving and reading them. Do this by selecting Check Mail You've Sent in the Post Office menu. From there, you can see the status of a piece of mail, read the mail you've sent, and unsend messages.

When you sign on to AOL, the Main menu will tell you if you have messages. You also can check your mail by clicking on Read New Mail in the Post Office menu.

### CompuServe

CompuServe's E-mail service can be found in the Mail menu.

To send a message, follow these steps:

1. Choose Create Mail from the Mail menu. A Recipient List screen automatically appears.
2. Click on the TO: radio button, and type in the address where you want the mail sent. CompuServe addresses consist of nine numbers separated by a comma, such as 12345,6789.
3. If you want to send a duplicate copy to another person, click the CC: radio button and type in the address.


**CompuServe lets you find a subscriber's address by entering a name, state, or country.**

4. After entering an address, click Add. When finished entering addresses, click OK.
5. Type the Subject of your message. This usually is a quick one- or two-word description of the message, such as "Work today."
6. Type your message.
7. Click the Send Now button. (The Options, Out-Basket, and File It buttons will be discussed later.)
8. The computer will display a message telling you your mail was sent.

## Sending Later

CompuServe lets you save messages to be sent later. To do this, follow these steps:

1. Create your message as described earlier.
2. Once finished, click on the Out-Basket button. This will save the message for you to retrieve and send later.
3. When you're ready to send the message, choose Out-Basket from the Mail menu.
4. From the Out-Basket menu, you can read, send, and delete a message, as well as send all messages in the out-basket.
5. Highlight the file you want to send and choose Send Now.

You also can file a message you've created. Create a message as described earlier, then click File It. From there, highlight the subdirectory you want it filed under (such as General or Auto-filed) and click Store. To send the message, choose Filing Cabinet from the Mail menu, double-click on the subdirectory where you put the file, open the file by double-clicking on the file name, and click Send Now.

## E-mail Options

When sending a message on CompuServe, you can choose from several delivery options. Create a message as described earlier and follow these steps:

1. Click on Options.
2. Click on Importance, and choose from Low, High, or Normal.
3. Click on Sensitivity and choose from Normal, Personal, Private, or Confidential.
4. Enter the Release Date and Expiration Date.
5. Enter the Payment Method, choosing from Sender Pays, Split Charges, and Receiver Pays.
6. Click on the Receipt box if you want to receive a receipt in your mailbox once the message is read. Note there is an extra charge for this option.
7. Once you have chosen the options you want, click OK and send your message.

## Composing Offline

Begin CompuServe as you normally would, but don't connect. Create a message as described earlier and choose Out-Basket. Connect to CompuServe, and select Out-Basket from the Mail menu. Locate the E-mail you created, click Send, and the file will be sent.

You also can choose to send E-mail containing a file you've created in another program.

1. Choose Send File from the Mail menu. Type the recipient's address.
2. Click on File. From this menu, select the drive and file name of the document you wish to send, then click OK.
3. Choose whether you want to send it in Text, Binary, GIF, or JPEG format.
4. Type in any additional information you want to send.
5. Click Send Now, and the file should be sent.

## Addressing Messages

You probably won't always be sure of a subscriber's address. When sending E-mail on CompuServe, one wrong number could send the message to the wrong person.

To help you find addresses for E-mail, CompuServe includes a member directory. To access this directory, choose Member Directory from the Mail menu. A screen appears asking you to enter search terms. These search terms can include a first name, last name, city, state, or country to help find the address. Once you've entered the search terms, click on Search. A list of all subscribers who meet your search terms will appear. To see information about a member, simply highlight the member's name and click Open. To see a subscriber's address, highlight the name and click Address.

## Checking Messages

When you have chosen to get a receipt for E-mail you send, the receipt will be in your mailbox after the person reads your message. To view these receipts, or mail you have received, choose Get New Mail from the Mail menu.

### Prodigy

Prodigy's E-mail service can be found by clicking Mail, which is on the shortcut menu bar at the bottom of the screen. When sending E-mail, follow these steps from the Mail menu.

1. Choose Write from the button bar.
2. Type in the TO: destination. Prodigy addresses typically are a sequence of four letters, two numbers, and a letter, such as ABCD12A.
3. If you want the message sent to more than one person, click on To: List from the menu bar and type in the addresses.
4. Enter the subject of your message. This is usually a quick one- or two-word description of the message, such as "'90s music."
5. Type your message.
6. Click on the Send icon.
7. If your message was sent correctly, the status box will notify you.

## Sending Later

Like other online services, Prodigy lets you send messages later. To do this, however, you must save the message to a disk or drive.

To save a message to be sent later, follow these steps:

1. Compose your message as described earlier.
2. Once you have composed your message, click on the Export icon. The computer will display a Save As screen, asking you to enter the file name and drive where you want to save the file.
3. When finished, click OK.

When you are ready to send the message, go to the Mail menu as described earlier. Choose Import from the button bar, then select the proper drive and file name of your file. Click OK, then click Yes if you want to use the same address and subject. The message should be in place, and you can send it as described earlier.

## E-mail Options

When sending E-mail through Prodigy, you have several options. Create a message as described earlier and follow these steps:

1. Choose Options from the button bar.
2. From the Options menu, you can customize your message or search through the member list.
3. Choose Customize Your Message to change fonts and colors.
4. Choose Search For An ID in the Member List to find an address.

You also can choose to get a receipt for any messages you send. Compose a message as described earlier and click on Receipt. Choose Yes, and a receipt will be placed in your mailbox when the message is opened.

## Composing Offline

Unlike America Online and CompuServe, Prodigy does not let you compose a message offline. But you can create a file in another program, such as *Microsoft Word* or *WordPerfect*, and attach the file to your E-mail.

1. Create a message as described earlier. Fill in only the address and subject.
2. Select Attach from the button bar. Choose the correct file name and drive, then click OK.
3. The file should be in place, and you can send the E-mail message.

## Addressing Messages

As with any other online service, having even one letter or number wrong in the address means you could be sending important information to the wrong person.

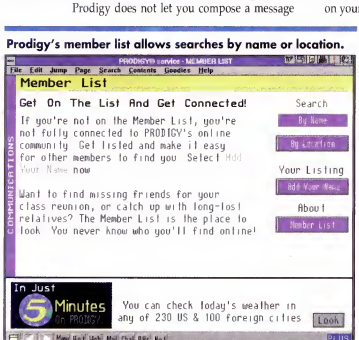
Prodigy includes a member directory to help you in addressing your E-mail. To access this directory, click on Look, which is next to the statement "Is your long-lost cousin a PRODIGY service member? Find out with Member List." From the member list screen, follow these steps.

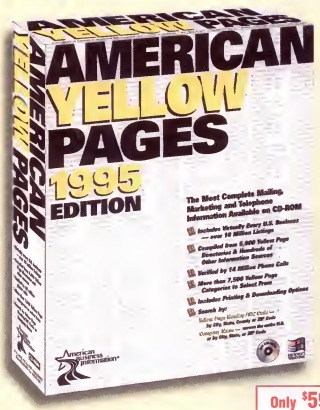
1. Choose By Name or By Location, depending upon how you wish to conduct your search.
2. For a search by name, type in the subscriber's name and click OK.
3. Select the state where you'd like Prodigy to search for the name, or choose Search All. Make your selection by double-clicking on your choice.
4. If a state is selected, you then will need to select the city for the search, or choose Search All. Select the city by double-clicking on your choice.
5. Prodigy will create a list of all possible matches for your search.
6. Click on the number next to the subscriber's name to see the account address and location.
7. From this information screen, you either can write a message to the person or add the name and address to your personal address book.

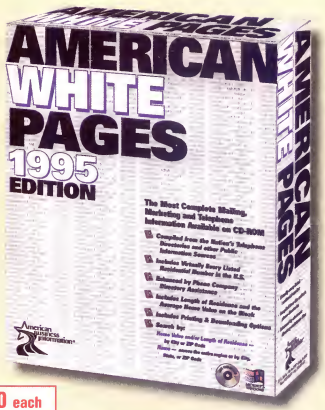
Messages sent to your Prodigy account automatically will be displayed when the Mail option is chosen. To view any of these messages, click on the message's number. ●

*by Corey Russman*

**Prodigy's member list allows searches by name or location.**



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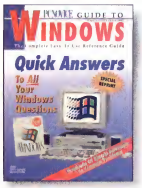


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# The World's In Your Hands . . . With The Internet!

You've just purchased a modem, and you're ready to join your family and friends on the Information Superhighway. But how do you communicate with your brother on CompuServe, your parents on America Online, your old roommate on Prodigy, and your children on Delphi without spending a small fortune in subscription charges each month? Easy. Use the Internet.

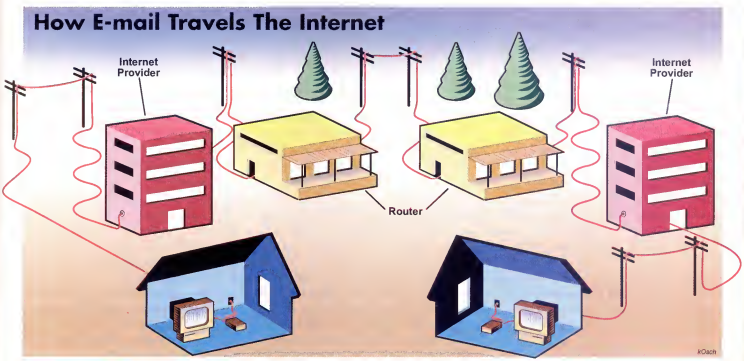
Although the Internet is the world's most-used online network, with an estimated 30 million users worldwide, it has been ignored by many regular users of online services. The primary reason for this is that the Internet, as a conglomeration of smaller networks, lacks the centralized corporate office that most of the commercial online services offer. The Internet has no technical support line, no 800 help numbers, and no instruction manuals to offer to prospective users. Therefore, many rookie onliners assume that the Internet is a network for hackers. However, it's quite easy to maneuver around the Internet and send E-mail once you become familiar with it.

If you don't subscribe to a commercial online service such as CompuServe or Prodigy and you can't afford to lease a direct line to the Internet (price: about $1,000 every six months), then you have two alternatives for gaining access to the Internet: 1) indirectly, through a shell account; or 2) directly, through a **Serial Line Interface Protocol** (SLIP) or **Point-to-Point Protocol** (PPP) connection. (SLIP and PPP are popular **communications protocols**, which are standards that let computers communicate with each other.) While the indirect means of access to the Internet is somewhat limited in its online multimedia capabilities, both a shell account and a SLIP/PPP connection, available from most local and national Internet access providers, are adequate for sending and receiving E-mail.

## Down To Business

Once you've decided on a way of accessing the Internet, you need to prepare your modem and communications software so that you can send and receive E-mail. A **baud rate** (data transmission speed) setting of 2400; a terminal emulation setting of VC100; and a modem setting of eight data bits, no parity, and one stop bit (often written as 8-N-1) is the usual configuration, but you should check with your host terminal for the modem settings that it recommends.

Connecting to your host terminal is a matter of engaging your modem and entering the number of your host terminal. It's common for your modem to emit a strange hissing and screeching noise while connecting, although it may be a little unsettling if you are not expecting it. Once you are connected to the Internet, you need to enter your E-mail program.




**E-mail messages pass through a series of routers that continually directs them to their intended destinations. Routers simply direct the course of the electronic signals so that they can travel most efficiently from one location to another. An E-mail message may run through any number of routers on its journey.**

You can use two types of programs for sending E-mail. The first type involves using a text-based system, such as *elm*, while the other uses a program with a graphical-user-interface (GUI, pronounced "gooey"), such as *Eudora*. (Sorry. You can't use a GUI program if you have a shell account.) The way you engage your E-mail program will depend on which program you've decided to use. In a text-based system, you either select the program from a menu or enter the name of the program at the prompt. In a GUI program, you simply double-click the appropriate icon.

## Text-Based Mail Programs

If you have a shell account or prefer to use DOS rather than Windows, you'll have to use a text-based E-mail program. Because of the number of text-based programs available, we will focus on the elm E-mail program. Although you may not use elm, the procedure for sending E-mail through it will resemble that of most other text-based E-mail programs.

To enter elm, type **elm** at the C> prompt. After pressing ENTER, type **m** at the main menu, and hit ENTER again. Your screen will then prompt you with "To:" where you will enter the E-mail address of your intended recipient. After hitting ENTER, you'll see a "Subject" prompt where you will enter a short statement that briefly explains the contents of your letter. (See "E-Mail Etiquette" in this issue). Press ENTER again. You may see a "Copies To:" prompt at this point where you will enter the addresses of anyone else that you would like to receive copies of your message. Upon pressing ENTER, you will be in your text editor, where you can compose the text of your message.

After you have completed the letter, you'll need to exit the text editor and return to the command mode, which is usually done either by pressing CTRL-X or by pressing ESC, ENTER, and then typing **w q**. Once you've exited the text editor, the menu will present a list of options. From your list of options, type **s** if you would like to send the message, **f** if you would like to delete the message before sending, or **e** if you would like to change the message in some way.

If you have received mail, you may see an itemized index of E-mail messages that you have received at the main menu or a message that reads "You have new mail." To read your mail, type in the number of the message you would like to read and press ENTER. Pressing the spacebar will automatically present the next message to you. If you would like to return to the index, type **i**.

**Addressing E-mail to the Internet from a service outside the Internet:**

| Online Services | Address Format | Examples |
|---|---|---|
| From **America Online**: | *username@host* | jsmith@plato.rf.edu |
| From **AT&T Mail**: | internet!*host*!*username* | internet!plato.rf.edu!jsmith |
| From **CompuServe**: | >internet:*username@host* | >internet:jsmith@plato.rf.edu |
| From **Delphi** | in%"*username@host* | in%"jsmith@plato.rf.edu |
| From **GEnie**: | *username@host*@INET# | jsmith@plato.rf.edu@INET# |
| From **MCI Mail**: | TO: *user's full name* (EMS)<br>EMS: Internet<br>MBX: *username@host* | To: John Smith (EMS)<br>EMS: Internet<br>MBX: jsmith@plato.rf.edu |
| From **Prodigy** | *username@host* | jsmith@plato.rf.edu |

**Addressing E-mail to another network from the Internet:**

| Online Services | Address Format | Examples |
|---|---|---|
| From **America Online**: | *username*@aol.com | jsmith@aol.com |
| From **AT&T Mail**: | *username*@attmail.com | jsmith@attmail.com |
| From **CompuServe**: | *user.number* (use period rather than comma)<br>@compuserve.com | 9876.43231@compuserve.com |
| From **Delphi**: | *username*@delphi.com | jsmith@delphi.com |
| From **GEnie**: | *username*@genie.geis.com | jsmith@genie.geis.com |
| From **MCI Mail**: | *usernamе/usernumber/real_name*@mcimail.com | jsmith@mcimail.com **OR**<br>2845839@mcimail.com **OR**<br>John_Smith@mcimail.com |
| From **Prodigy**: | *username*@prodigy.com | jsmith@prodigy.com |

## GUIs

If you have a GUI E-mail program, using E-mail on the Internet is as simple as navigating around a Windows screen. We used the Eudora program for our example. Other GUI programs should resemble Eudora's basic structure.

After dialing up your host computer and double-clicking on your E-mail program icon, you will be asked to enter your password so that you can be admitted into the program. If you have received any mail, a message then will appear on your screen to inform you. Clicking on the Mail menu will let you access mail that you have received and sent. Click on the New command in the Message menu to enter the text editor and compose your letters. At the head of these electronic letters are slots labeled To:, From:, and Subject:. You should fill these in before sending your letter. (Your E-mail program may automatically enter your name in the From slot).

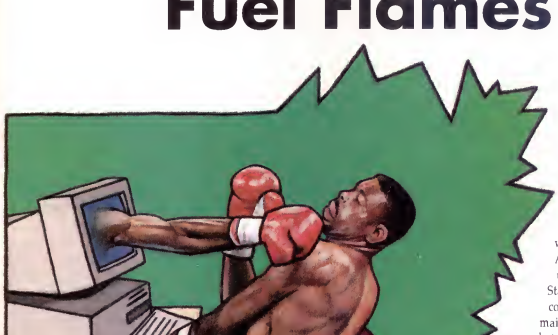
Many GUI E-mail programs have a Nickname or Alias file where you may save often-used E-mail addresses under aliases for easy recollection. If you wish to send a message to someone whose address you have stored under an alias, you enter the alias name rather than the address at the To: prompt. Consult your file menus to find the location of your Nicknames or Alias command.

After you've composed your letter, click on the Send box, and your electronic message will head for its destination. To exit your E-mail program, double-click on the Exit command under the File menu.

Electronic communication has made the world a small place. Because of its international popularity and the universality of its network system, the Internet can make the world even smaller. Learning to use E-mail on the Internet will give you the ability to make the world so tiny that it's accessible through your fingertips. ●

*by Jeff Dodd*

# Online Feuds Fuel Flames



If you've entered an online chat session lately, you may notice your jaw hurting a bit from all the punches taken through verbal jabs. These incendiary write hooks, referred to as flames, are regular inhabitants of the Internet and electronic mail.

A flame, according to "The Elements of E-mail Style" by David Angell and Brent Heslop, is "an inflammatory remark or message." Pretend, for example, you wrote an E-mail that said, "Welfare should be abolished." Now say someone received it and not only disagreed with it, but wrote back, "You've got to be the stupidest person I've come across, and I hope you end up on the streets needing welfare to stay alive." Such personal attacks are considered flames. Some flames threaten another person in messages such as, "I'm going to find out where you live and make you regret that remark."

It may seem easy to distinguish a flame from any other comment. But the line may not be as clear as you might guess. Strong comments made in a heated discussion over an issue are different from derogatory personal remarks.

Donna Apperson, a regular America Online user, says comments turn to flames when the focus turns from issues to individuals.

"Feeling strongly about an issue and defending it does not, to me, define flaming," Apperson says. "It is the personal attack that does tend to make the 'flamee' feel uncomfortable in their own home that qualifies."

You can encounter flaming almost any time you go online. You just have to follow the smoke of the right online rooms to find fire. Flames often are fanned by discussion of politics, feminism, religion, or nearly any other controversial subject.

Flamers can be users who go online to vent daily frustrations or those who, in the midst of a heated discussion, don't give themselves time to calm down and then lash out without considering the repercussions.

Even E-mail users who give themselves up to a few days to ponder what they write can be flamers. Dan Ashlock, an America Online user and a professor at Iowa State University, and those who correspond with him, do so via E-mail rather than using real-time chat features, as many online users do. Ashlock often encounters flames even a relatively long time after the last message was sent.

Ashlock became a flaming victim when he got into a heated discussion with someone who had an opposing view on creation. Three days after Ashlock sent a message to the person, he was flamed in a message that included passages such as, "Your filthy mind is about as bad as your filthy lies about origins," and "You, in total rebellion, refuse to admit your own depravity and filthy nature."

It's a common belief that flaming is merely a result of someone not giving themselves enough time to think before they respond. That's not the case with Ashlock and those he converses with.

"Even with the time delay, people get mad," he says.

## Faceless Forum

If you get upset at a business meeting or among friends, you probably try to remain calm, realizing that everyone knows who you are and will remember how you react to the situation. But when you are talking with people through the computer, the situation changes. Users are anonymous, and responsi-

bility for their comments is lost.

Adam Powell often spends time on America Online just reading the letters that are sent back and forth. He believes anonymity is a big factor in what people are willing to say.

"People are a lot more apt to say things that they would never say to anyone else," Powell says.

Ashlock says it's obvious that having a computer screen between people makes a difference, even for himself.

"(Being anonymous) definitely affects me. I'm about three times as mean and nasty. I even sign my real name to it, but they still can't tell who I am," he says.

It might seem that people who flame have been provoked in some way, either by other flamers or an issue that has thrown them over the edge. But that's not always the case. Some flamers go online with the intention of burning others.

Apperson, who used the nickname "Blue" online, fell victim to someone wanting to vent. The person singled her out for no apparent reason, repeatedly questioned her intelligence, and said things in a public newsroom such as, "Blue is really stupid." The person continued to write her, even on instant messages, until she began asking the person why he was doing this. They ended up talking, and the flamer admitted to being in a foul mood and wanting to release his frustrations on someone. Apperson was the hapless victim.

The online community is a place to talk, and, more attractively to some users, it's also a place where you don't necessarily have to be yourself. If you wanted to yell at someone at the office, but knew you couldn't, going online is a way to do it. In some cases, it doesn't matter what is said to the person.

"There are a lot of people who use the 'Net just as a way to dump their tensions," Powell says.

## Effects Of Flaming

With online services being relatively anonymous, some wonder if there is anything to worry about when you are flamed.

**If you wanted to yell at someone at the office, but knew you couldn't, going online is a way to do it.**

Jim Cameron is a system operator for the Journalism forum on CompuServe. His job, with the help of 12 assistants, is to moderate what is said online. He has been moderating the forum for 10 years and has never heard of anything more serious than verbal threats on his forum.

In almost all cases, getting flamed won't cause any real-life problems, except maybe hurting a few feelings. But in the case of Martha Siegel and Lawrence Canter, a husband and wife law team, flames caused more of a ruckus than usual.

The couple placed thousands of advertisements on the Internet and were engulfed by flames of disgust over their choice of places to advertise. The couple's system didn't shut down, but, Siegel says, the online service they used claimed that its system shut down, so all the flames intended for the couple may not have reach them. The flamers were angry that commercial advertisements had made their way onto the Internet, and some reacted by sending a multitude of messages intended to overload the system. Some flamers sent letters explaining their anger, while others sent things like copies of the dictionary, hoping to overload the system, Siegel says.

Siegel doesn't feel that she and her husband were wrong in placing ads where they did. In fact, they're still advertising today and have published a book called, "How to Make a Fortune on the Information Superhighway." In her opinion, the flames they received were from a small group of people who bombarded them with mail.

"They like to flame," she says.

## Avoiding Victimization

Falling victim to flames can happen even to nice people on the Information Superhighway. In cases such as Apperson's, you may be attacked even if you say virtually nothing. Someone may decide that you are the person they want to harass.

In their book, Angell and Heslop give some tips to avoid E-mail flaming. They include:

- Ask yourself whether or not you would say what you've written to the person's face. If not, you probably shouldn't send it.
- Wait until you have calmed down before replying to a message that has upset or angered you.
- Consider the possibility that you have misinterpreted the message and that it was intended as a joke.
- If you are certain that you are the recipient of a flame, and not a friendly joke, you may be able to defuse the situation by responding calmly and tactfully, instead of escalating the argument.
- Always check your own messages—not just replies to flames, but all messages—to be sure they don't contain any offensive language or easily misinterpreted comments.

If you must send a message that you know will offend the reader—for example, a message stating your disagreement with a position they took in the message they just sent you—do it only on private E-mail rather than in group chat rooms, and let them know that you realize you're being argumentative. Angell and Heslop suggest typing your message in the following format:

**Flame on:**

*message text*

**Flame off.**

Although your jaw may start aching from the verbal jabs received through online services, you can be sure your bruises are only temporary. But even the power of inflicting passing wounds demands caution.

"The technology of being able to communicate online is fabulous," Cameron says. "You can put your ideas and viewpoint in front of millions of people instantaneously. That's a wonderful opportunity.

"The downside is we are too quick to peck out a response to something that someone has said about us or to us online without stopping and thinking. There is the instantaneous nature of the communication that makes it too easy to flame . . . . Flaming begets flaming." ●

*by Kirsten Bernthal*

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# E-mail Etiquette


E-mail (electronic mail) is rapidly gaining popularity as a form of communication, for individuals as well as businesses. Along with other types of electronic communication such as bulletin boards, chat rooms, and newsgroups, it's replacing postal mail (frequently called "snail mail" by E-mail users) and the telephone as the most convenient method of communication. Millions of people around the world have E-mail, either at work or at home, and they're using it more and more.

As with any other type of communication, there are rules of etiquette to be observed when using E-mail. The rules of online behavior may seem confusing at first. Emily Post may help you pick the right wedding gift, but she and other manner matrons fail to outline faux pas that may befall E-mail composers. Don't worry. As you become familiar with this communication style, you'll find the rules easier to understand.

Some rules of E-mail etiquette apply to all forms of communication. For example, rules of common courtesy still apply. The relative security of communicating from afar via your computer and modem is no excuse for poor manners. A good general rule is never to say anything in an E-mail message that you wouldn't say if you were talking to the recipient face-to-face. You also should avoid sexist, culturally insensitive, and judgmental language.

Respect for confidentiality should carry over to E-mail. Eavesdropping and gossiping are still a bad idea. Never read anyone else's mail without their permission. You also should always get permission before forwarding a message you received to a third party.

## Format

In general, you should write E-mail messages as you would write a letter. Use an appropriate salutation and closing, both of which will vary depending on whether the message is personal or a business memo. Follow the same basic rules of grammar, punctuation, spelling, and sentence structure that you would for a regular letter. If you're responding to part of a message which was sent to you, include the pertinent part of the message in your reply so the recipient knows what you're referring to. Be careful, however, not to repeat more of the message than is really necessary—this is both boring and a waste of the recipient's time and money.

One significant difference between composing a traditional letter and an E-mail message is the time factor. Most of us were taught

that the writing process should include careful revision and editing. While you certainly want to proofread important messages to eliminate embarrassing errors, you don't want to spend large amounts of time editing an E-mail message. As David Angell and Brent Heslop point out in their book, "The Elements of E-mail Style," one of the major benefits of E-mail is the speed of the communication. If you spend much time editing, you lose much of that advantage.

Other E-mail etiquette tips are specific to the electronic environment. For example, brief messages are considerate not only because long messages are somewhat boring to read, but also because the recipient is paying for the online time required to read the message. Keep your sentences short. This keeps the overall message length under control and makes each sentence easier to read.

To help E-mail messages stay as short as possible, while still communicating the entire message, members of the online community have developed a sort of shorthand, using acronyms to stand for commonly used phrases. (See "Alphabet Soup" sidebar.) If you run across an abbreviation of this sort, and don't know what it means, just ask. Experienced E-mail users are usually willing to help neophytes learn the language.

## Nonverbal Communication

One difficulty that arises too often in electronic communication is the problem of trying to convey emotion. Things you would convey through tone of voice, facial expression, or gestures in a face-to-face conversation are much harder to express in E-mail messages. To convey some of those things, such as sarcasm, humor, and laughter, E-mail users have invented symbols called "smileys" or "emoticons." (See "Funny Faces" sidebar.) Smileys, which cover a wide range of nonverbal communication, are designed to help communication, not to allow rudeness. In fact, they help avoid misinterpretations that could make the recipient of a message think the sender was being rude.

For example, a joke followed by a :-) is clearly meant in good humor, while the same joke without the smiley might be interpreted as a serious remark, causing the reader to take offense. Emotion also can be conveyed by adding a label at the end of the sentence or paragraph, such as <grin> or <frown>, to help the reader identify your mood. There are some common abbreviations for this type of notation: <g> for <grin>, and so on. Smileys and mood notations are casual and shouldn't be used in business communications. You also should be careful not to get carried away with them. Using them to clarify meaning occasionally is great—sprinkling them liberally throughout a message is considered by most to be annoying, not cute. As with the acronyms, if you run across smileys you don't understand, ask authors who used them what they meant. In the same spirit, once you are comfortable using them, be patient with newer E-mail users who ask you what those funny symbols mean.

There are two "tones of voice" recognized in the E-mail world, both of which are considered rude. One is shouting—writing in all capital letters. Writing exclusively in capitals is as visually jarring to a reader as shouting is to a listener. Instead of putting a word in capitals to emphasize it, enclose it in asterisks. For example, "I was *really* surprised" is easier on the reader than "I was REALLY surprised."

The second "tone of voice" is mumbling, or writing in all lowercase letters. Leaving out all of the capital letters in a message makes the reading harder, just as mumbling makes a listener work harder to hear what is said.

## Courtesy

Due to some users' view of electronic communication as impersonal, it's a good idea to avoid using E-mail for major news. Announcements of engagements, births, and so on might be delivered better in a more personal manner, since some people consider E-mail the modern-day equivalent of form letters. This rule is especially true if the news you're conveying is bad. It would be in poor taste, for example, to notify someone by E-mail that they weren't given a promotion they had applied for. If for some reason you're forced to convey a negative message via E-mail, be as tactful and positive as the situation allows.

To make your E-mail messages more personal, use a greeting within your message instead of simply relying on the header of the message. Likewise, sign it with your name and an appropriate closing instead of making the recipient check the line with the account name listed as the originator of the message. It may or may not identify you clearly, and it certainly is less personal than signing your name.

Use the **subject line** to give the recipient an overview of the message. This line, which appears in the recipient's "inbox" or list of new mail along with the name of the sender, will allow them to

## Funny Faces

One of the biggest challenges of electronic communication is trying to convey emotions. E-mail users have invented symbols to convey things that would be conveyed by tone of voice over the phone or facial expressions in person. These symbols are called "smileys" or "emoticons" and are mostly small faces composed of several keyboard characters. (You have to tilt your head to the left to view them.) Here are some of the most common examples:

| | |
|---|---|
| :-) | Happy/Smiling |
| ;-) | Winking |
| :-( | Frowning/Sad |
| :-& | Tongue-tied |
| :-S | Incoherent |
| :-D | Laughing |
| :-@ | Screaming |
| I-O | Yawning/Snoring |
| :-P | Sticking Tongue Out |
| :'-( | Crying |
| :'-) | Crying For Joy |
| :-> | Sarcastic |
| <:-> | Devilish |
| O:-) | Angelic |

A few smileys are not faces; here are several of the most popular:

| | |
|---|---|
| {} | A hug (usually in multiples—{{{{{}}}}}) |
| {initials} | To hug a specific person |
| —<—@ | A rose |
| 12x—<—@ | A dozen roses |

Some of these smileys have more than one meaning depending upon the user, but in general the definitions are very similar. You can find more complete listings online; users often post their own lists of smileys. On America Online, select Keyword: File Search, then enter **emoticons** . As you become an E-mail expert, you may come up with some smileys of your own to add to these lists. ●

decide whether the message needs immediate attention or not. Put a brief but descriptive title for your message here. For example, a memo to your employees about new telephone procedures in the office could be titled "New Phone Procedures" instead of "Phones" to make the subject as clear as possible. It's poor form to write something like "Urgent" in the subject line if the message isn't truly urgent. (Remember the boy who cried wolf?)

If possible, use the same online service as your recipient uses. This makes the addressing easier and reduces the chance of the person not receiving your message.

Check your E-mail frequently—at least daily, if not more often. If you neglect to do so, you may be inadvertently ignoring a message sent to you. It is particularly important to check throughout the day if you use E-mail for business correspondence that you might need to act upon during business hours the same day.

Intentional disregard for courtesy leads to **flaming**, an E-mail term that refers to sending messages containing inflammatory or otherwise offensive remarks. A series of such messages (or flames) becomes what E-mail users call a flame war. These wars start because the speed of communication on E-mail allows someone who receives an offensive message to send an immediate, angry reply—before they have time to think it through. And, much like hurtful comments said in person, once you've sent a message, you can't take it back. It's a good idea to follow the old rule of counting to 10 before saying something if you're angry. (For more about the flaming phenomenon, see "Online Feuds Fuel Flames" in this issue.)

## Office E-mail

If you use E-mail at work, there are some special factors to consider. Sending E-mail through an office **LAN (local-area network)** is different from sending E-mail to a friend through an online service.

Perhaps the biggest difference between domestic and professional E-mail is the amount of confidentiality you can expect. The office LAN administrators can, and often do, monitor the messages sent on the system. It's a bad idea to use office E-mail for any type of personal communication, for two reasons. First, most employers frown upon this practice. It's a more subtle version of standing around a water cooler gossiping, but it's unlikely to be accepted any more than visible dawdling. Second, the contents of the message may find their way into the hands of a person who you (or the person with whom you were communicating) don't want to read the message.

Workplace E-mail etiquette also concerns **address groups**, which are lists of employees grouped by some common factor, such as a list of all supervisors. It is inconsiderate—and an inefficient use of system resources—to send a message to an entire address group if it really needs to go only to two or three people.

Office E-mail sometimes demands disaster prevention more than manners. To keep mischievous co-workers from sending messages in your name, sign off the system whenever you'll be away from your computer. Any message sent from your terminal while you're signed on will appear to be from you. This is too much of a temptation for some pranksters to resist. If you are one of these pranksters, think twice about what you're doing. Someone could lose their job for a message you sent as a joke.

If you follow these basic rules of E-mail etiquette, you should enjoy your exploration into electronic communications. Good luck, and keep your elbows off the desktop. ●

*by Diana K. McLean*

## Alphabet Soup FYI

As you explore the world of online communication, you'll discover a whole new language. E-mail users have developed a vocabulary, which includes acronyms for commonly used phrases, to save time and money. These abbreviations can be confusing if you don't know what they stand for, but once you learn them, they make E-mail easier. Here is a partial list:

| | |
|---|---|
| **AAMOF** | **As A Matter Of Fact** |
| **BAK** | **Back At Keyboard** |
| **BBFN** | **Bye Bye For Now** |
| **BRB** | **Be Right Back** |
| **BTW** | **By The Way** |
| **CMIIW** | **Correct Me If I'm Wrong** |
| **CUL** | **See You Later** |
| **F2F** | **Face-To-Face** |
| **FITB** | **Fill In The Blank** |
| **FYA** | **For Your Amusement** |
| **FYI** | **For Your Information** |
| **HHOK** | **Ha Ha Only Kidding** |
| **HOUEW** | **Hanging On Your Every Word** |
| **IAC** | **In Any Case** |
| **IKWUM** | **I Know What You Mean** |
| **IMHO** | **In My Humble Opinion** |
| **IOW** | **In Other Words** |
| **KWIM** | **Know What I Mean?** |
| **LOL** | **Laughing Out Loud** |
| **OIC** | **Oh, I See!** |
| **OTOH** | **On The Other Hand** |
| **PNCAH** | **Please No Cussing Allowed Here** |
| **PTMM** | **Please, Tell Me More** |
| **TIA** | **Thanks In Advance** |
| **TIC** | **Tongue In Cheek** |
| **TNTL** | **Trying Not To Laugh** |
| **TNX** | **Thanks** |
| **TTKSF** | **Trying To Keep Straight Face** |
| **TYVM** | **Thank You Very Much** |
| **WRT** | **With Respect To** |
| **WTGP?** | **Want To Go Private?** |
| **YIU** | **Yes, I Understand** |
| **YIWGP** | **Yes, I Will Go Private** |
| | |
| **<G>** | **Grinning** |
| **<J>** | **Joking** |
| **<L>** | **Laughing** |
| **<S>** | **Smiling** |

There are many more; you'll discover them as you explore the world of online communication. Additional listings may be found on online services, wherever users post lists they have come across or come up with on their own. On America Online, you can find these by performing a file search for files containing the word "acronym." As you become more proficient at E-mail communication, you'll probably come up with a few of your own to add to the mix. ●

# Dial M For Modem


As the cyberworld gathers press and population, suddenly no computer seems complete without a modem, the device that links your computer to others through standard phone lines.

The mountains of modems in stores and magazine ads attract many users seeking to upgrade their old, slow modems or perhaps to dive into data transmission for the first time. Before deciding which modem to buy, it helps to translate some of that standard computer industry gibberish that shows up on the rows of boxes.

Modem choices are based on three basic issues: whether the modem is going to sit inside or outside your computer, how much speed you need, and how many little extras you want.

## External vs. Internal

One of the first considerations is where that shiny new modem will live. Nearly every brand and speed of modem comes in two varieties: external and internal. External modems are housed in self-contained boxes that sit on your desk and connect to computers through a cord. Internal modems reside inside your computer with all of their silicon buddies.

External modems usually cost at least $20 more than otherwise similar internal versions. The additional money buys a couple of advantages. External models are easy to install—you simply plug them into your computer and load up the software according to the manufacturer's instructions. External modems also usually have some cool red lights that blink when you send and receive data. Besides being fun to watch, these lights can help people who know something about modems diagnose any problems that arise.

Internal modems require you to actually open up your computer during installation. Depending on the quality of the manufacturer's instruction manual, this job can be simple or difficult. The main advantages of internal modems are that they cost less and require no additional desk space.

## Need For Speed

Once you've tackled the internal/external debate, you'll face the Big Modem Question that deals with speed. Depending on how much money you want to spend, you can paddle about the data highway in a slow modem or shoot the rapids with a fancy fast model. Modem speeds are measured in the number of bits per second, or **bps**, they can transmit. (**Bits** are single characters, either 1 or 0, that represent data; eight bits make up a **byte**, which represents a single character.) It wasn't all that long ago when most modems ran at 2400bps, and a "high-speed" model clocked in at 9600bps. Today, the stakes are higher. The prevailing standard is a 14,000bps modem, and the new 28,800bps modems are quickly gaining popularity.

With a 2400bps connection, it might take a little over a minute to send 20 kilobytes (KB), which is about the amount of information in a five-page text document. (A kilobyte is 1,024 bytes.) A 14,400bps modem could do the same job in 11 seconds, and a 28,800bps modem would scream through the task in five seconds. These faster transfer rates assume your modem is able to communicate with a modem that can talk at similarly high speeds. A 28,800bps modems can connect with a 9600bps modem, for instance, but data transfer will only move as fast as the slower modem can manage.

Today's modems attempt to reach even faster speeds by using **data compression**. The data doesn't move any faster but is instead squeezed into a smaller form that takes a shorter amount of time to send. Newer 28,800bps modems conforming to the V.34 standard (see sidebar) can theoretically pump data at a blazing 115,600bps, or four times their rated speed. This number, the modem's speed with compression taken into account, is referred to as **throughput**. Many modems boast

fantastic throughputs, but approaching these speeds depends a lot on the type of data in question, the processing power of your computer, and the quality of your phone connection.

A modem's speed is one of the main factors in determining cost. Prices for old, clunky modems are plummeting. Many fast 14,400bps modems are now under $100, and V.34 28,800bps models usually run $200 or more. As with anything in computerland, the sky's the limit if you have the urge to spend a lot of money. On the other hand, it's quite possible you don't really need mega throughput.

One way to settle the issue is to think about what you might do with your modem. If you are going to download large files across long-distance phone lines, a fast modem can save you handfuls of money in phone charges. If you are just going to send and receive a few electronic mail messages each day, a superfast modem won't do you much good. Another consideration is the speeds of the modems you want to connect with. The major commercial online services are all adding high-speed connections, but most of them are only in major metropolitan areas so far.

A few people have been known to pick up old 1200bps modems free from friends or some back company storage room. If the price is right, one of these slower modems might be a good way to see if the online world has anything to offer you. The slowest modems you'll find still clinging to store shelves probably run at 2400bps. Although these speeds aren't much for business applications, home users who don't anticipate using their modems for more than E-mail could get by at 2400bps and do nicely at 9600bps. However, with prices dropping every day on much faster 14,400bps modems, it is tempting to take the plunge. A 14,400bps modem—sometimes written as 14.4Kbps—makes it possible to download graphics in reasonable amounts of time. Surfing the Internet's graphical World Wide Web is much more entertaining at high speeds, and you can save money if you pay for online access by the hour.

If 14.4Kbps is good, 28.8Kbps is great—mostly. Just because your modem says it handles throughput at 28,800bps and up doesn't necessarily mean you will see that kind of performance. The 28.8Kbps modems can go too fast for many computers, and they don't work well with Comm.drv, the communications driver supplied with Windows 3.1. After you spend time making your modem and computer get along, you may find relatively few other 28.8Kbps modems to talk to at the new speed. While 28.8Kbps is the emerging standard, it might not be worth the extra money for the average home user yet unless you plan on frequently downloading large files from sites you know have high-speed modems.

## All In One

Telephones and computers are slowly merging into one, all-purpose machine. Fax capability or voice support are built in to many modems sold today, giving computer users more options than mere data transmission.

In fact, it's getting hard to find a modem that isn't also a fax. With a fax/modem, you can use your computer to send and receive faxes to and from any fax machine in the world. Unlike with the familiar standalone fax machines, faxes coming into your computer do not need to be printed out. You can view them right on your monitor. You also can send a document or graphic from your screen to a normal fax machine. The fax software bundled with most fax/modems lets you fax to groups of people automatically or schedule transmissions late at night when phone charges are the cheapest (See "Fax Software Anyone Can Love" in this issue.)

Modems with voice capability can, with the right software, receive incoming calls and take voice mail messages for a group of people. Your computer can act as a super answering machine, keeping track of when each call came in, and, if you have caller I.D. service in your area, who made the call.

All of these features—data, fax, voice—can tangle up a single phone line. Some modems are designed to work with the "distinctive ring" feature offered by some phone companies. The phone company can assign one phone line multiple phone numbers, each of which makes a slightly different ring for an incoming call. A fax/modem configured for distinctive ring might answer only the fax calls and let the rest pass through. This is a way for small businesses or individuals to set up their own fax numbers.

Even without all these goodies, a modem can still be an entertaining investment. New features are popping up all over the Internet, online services, and local bulletin board systems that are sure to make your computer less lonely. You even might find something useful out there. ●

*by Alan Phelps*

## The Numbers Game

Modem makers seem to produce as many acronyms and codes as they do modems. Most of the strange numbers on modem boxes refer to the names of industry **protocols**, or standards modem manufacturers agree to follow to ensure different modems will be able to understand one another.

The main numbers to watch for stand for modem speeds, data compression, and error control methods protocols.

### Speed

- V.34: The new standard for 28,800bps transmission—a 28.8 modem.
- V.FC: This stands for V.Fast Class, which was one of the more popular interim standards used by the modem industry before V.34 was approved. V.FC modems also run at 28,800bps, but they may not be able to connect at top speeds with every other 28.8 modem. It usually is a better idea to steer toward V.34 rather than of one of these older 28.8 standards.
- V.32 bis: The standard for 14,400bps transmission.
- V.32: The 9600bps standard.
- V.22 bis: The standard for 2400bps modems.

### Compression

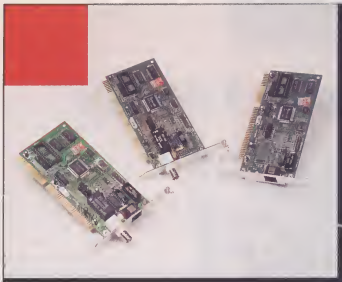
- V.42 bis: Modems that are able to compress data using V.42 bis can theoretically increase throughput up to four times for some files (see main story).
- MNP Class 5: An older protocol that can compress data up to two times.

### Error control

- V.42: A standard protocol for checking to make sure transmitted data does not contain errors.

### Fax speeds

- V.29: The standard for 9600bps fax transmission.
- V.17: The standard for 14,400bps fax transmission. ●





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# 10 Ways Your Family Can Use E-mail

It's sad but true. Most Americans aren't getting the most from their computers. They manage their finances, use some educational software, and play a few games. But the computer is much more than a financial or learning tool.

Computers are rapidly becoming an invaluable communications tool, letting people send and receive electronic mail or faxes. But many average consumers don't use their computers to correspond. The use of computers exploded last year, with most studies finding that about 33% of households owned a computer in early 1995. But many of these new computer users aren't merging onto the Information Superhighway. Despite the fact that 73% of the buyers in a 1994 Software Publishers Association study said they owned a modem, only 25% said they used some sort of an online service.


Are you one of the computer-owning Americans who hasn't gone online? If so, you're missing out on a great way to communicate instantly, without the long distance charges, though you are charged for online time. For all you skeptics, here we offer 10 ways your family can use that modem to send electronic messages.

## 1. E-mail birthday cards, anniversary cards, Christmas letters, Mother's Day cards, and so on.

When you care enough to send the very best, you might as well send it electronically. Besides, have you checked the price of some of those greeting cards lately? Jot down a short note to Mom for Mother's Day or send Uncle Bernie an E-mail message for his birthday, this time not belated. Either type your message on the E-mail screen, or create your own card with a word processor or desktop publishing program in which you can import clip art or use special fonts. Then attach the file to an E-mail message.

For example, reader Don Krtanjek, Jr. of Baltimore, Md., says he sent an E-mail message to wish his fiancee happy birthday. Along with the birthday message, he sent her a rose, or at least a picture of one that he attached to the message.

You don't have to wait for a holiday. Use E-mail to send thank-you notes or graduation invitations. If you're really innovative (some would say tacky), you might consider sending E-mail instead of wedding invitations. Then create a map to the church and attach it as a file.

## 2. Enclose an electronic photo or greeting with your E-mail.

Whether you are sending a card or a simple letter, you can attach a picture file to your message. Pass along the snapshots from your latest vacation, or include a recent family photo.

Take, for instance, reader Merri Dillinger of Liberty, Mo. She received pictures of a friend's newborn baby boy. Her friend scanned the pictures into electronic form with a scanner. Then she attached the photos to an E-mail message via CompuServe.

If you want to personalize your message even further, attach a sound file to E-mail. If you've got a sound card, recording software (which probably came with your sound card), and a microphone, you can record messages in your own voice. You can attach music clips, as well, or any other sound clips you think might be suitable.

## 3. Send E-mail to faraway family or friends.

Instead of breaking out the stationary and writing a drawn-out letter for which you must locate an envelope and stamp, you can send quick E-mail that arrives instantly.

It's really a more economical way to communicate over a long distance. Take it from reader John Travis of Pleasantville, N.J. He sends his sister, Shirley Lascko of Elkton, Md., messages about four times a month on America Online to keep up with the latest happenings in her life. Or, if he happens to catch her online, he talks back and forth with her instantly through a special chat option. Since they both belong to the same service, he says, it seems to be a cheap, easy way to stay in touch.

It might be worth having an electronic address to let the kids contact Grandma or Grandpa. After kids type up a little note, they can draw a picture in a drawing program or Windows Paintbrush. Then they can attach the file to the E-mail message for the grandparent to print out and proudly display on the refrigerator.

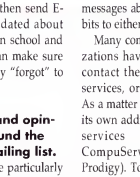
## 4. Keep in touch with kids at college.

Many universities now supply their students with computers and free Internet access

in their dorm rooms. It's a local call and an easy way to keep in contact. Parents can keep college kids informed about what's happening at home; meanwhile, students can write home for more money.

Reader Helen Horiuchi of Los Angeles says she uses E-mail to keep up with what's going on with her daughter at the University of Pennsylvania. She doesn't have to wait for any juicy tidbits to be delivered through snail (U.S. Postal Service) mail. E-mail lets them keep in touch on a daily basis.

## 5. Communicate with your child's teacher.



Many schools have computers and some kind of Internet or online account, allowing students and teachers to go online.

Find out if little Tommy's teacher has an online address, then send E-mail to the teacher to keep updated about what your child is working on in school and how your child is doing. You can make sure you get all the notes that Tommy "forgot" to bring home.

## 6. Share information and opinions with users around the world through a mailing list.

Have a topic or hobby you are particularly interested in? You can join an Internet mailing list on the topic. **Mailing lists** are electronic discussion groups distributed via Internet E-mail. There are thousands of topics to choose from, ranging from subjects such as the American Association of Teachers of German to the Grunge Rock Discussion List to the Sailing and Amateur Boat Building List. If you don't find one that suits you, you can start your own.

Take, for instance, reader Karen Buchinger of Buffalo, N.Y. She joined a professional mailing list for medical librarians formed by the group Upstate New York (UNYOC). Buchinger says she has gotten about five messages every two weeks or so about continuing education or special projects.

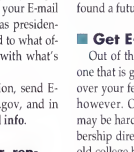

Once you join a mailing list, you automatically receive every message posted to that list. In addition, you can post a message on the list for everyone else to read.

To get a list of major Internet mailing lists, send a message to listserv@bitnic.bitnet and leave the subject line blank. In your message, simply type **list global**.

## 7. Communicate with television stations, local radio stations, magazines, or just about any type of business electronically.

If you watch television or listen to the radio, you will find that many stations now have their own online address or locations (otherwise known as home pages) on the Internet. For instance, networks such as NBC and MTV have E-mail boxes and bulletin boards on America Online through which you can send messages about programming or provide tidbits to either of the online staffs.

Many companies, corporations, and organizations have electronic addresses. You can contact them about products, services, or whatever you like. As a matter of fact, *PC Novice* has its own address on several online services (74644,3017 on CompuServe and ASTG79A on Prodigy). To find more addresses, explore the online services or watch and listen for the business or group to advertise its address.



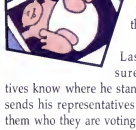

## 8. Keep up to date with what's happening in government.

Did you know that you can sign up to get White House press releases sent to your E-mail address? You can get news such as presidential remarks or who was appointed to what office. It's a good way to keep up with what's going on in the Oval Office.

Interested? For more information, send E-mail to Publications@whitehouse.gov, and in the body of the message, type **send info**.

## 9. Contact your senator, representative, or other government officials.

After you find out what's going on in government, let them know how you feel about it. Want your congressional representatives to know exactly how their constituents stand on the issues? Send them E-mail.



Parke Potter of Las Vegas makes sure his representatives know where he stands. Potter says he sends his representatives E-mail to remind them who they are voting for and who they are elected by. Previously he had sent messages through snail mail and was spending about $2 to $3 a month. Now he sends them electronically, cutting his cost considerably. Potter says he found that he gets a better response from his representatives when sending E-mail than when he sent the message through the postal service.

Contact your representatives' offices to discover their E-mail address. Or, if you want your message to arrive where the buck stops, E-mail President Clinton at president@whitehouse.gov or Vice President Gore at vice_president@whitehouse.gov.

## 10. Get a pen pal.

While online, you're bound to find a "kindred soul" in a chat room, forum, or bulletin board. One simple message to answer a question or to ask for help may turn into a barrage of messages. The pen pal doesn't have to be halfway across the world. They can be in the same country, state, or city.

While electronic pen pals can give you insight to people and cultures around the world, the relationships can go even further. Some of these experiences have developed into lifelong friendships. Some E-mail users even have found a future husband or wife.

## Get E-mailing

Out of these 10 ideas, you're bound to find one that is good enough to motivate you to get over your fear of the online world. Watch out, however. Once you start sending E-mail, it may be hard to stop. You'll be searching membership directories of online services to talk to old college buddies, to do your everyday business, or to exchange computing tips and tricks. Maybe you'll even come up with an idea that has never been used before. It all starts with addressing that first message .... ●

*by Cindy Krushenisky*


I was passing through a wasteland when suddenly my mind drifted
VIRTUAL BOY

my spirit lifted, my location shifted into a new dimension a third dimension a good dimension.

Was this their intention?
To crash my dimension?

I stepped into the invention
and heard a voice say,

# Turn it on Virtual Boy™

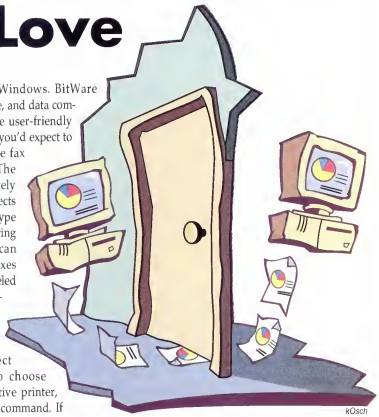
A 3-D game for a 3-D world.

Nintendo®

Virtual Boy is a portable 32-bit 3-D game system, featuring phase linear array technology, digital stereo sound, two high-resolution visual displays, and 3-D graphics that immerse you in the game. Coming soon—stereo headphones and Game Link® cable for head-to-head action.

Turn it on and experience the difference a dimension can make.

# Fax Software Anyone Can Love




Graphical applications mean going online has never been easier. That's why millions of people regularly use online services to shop, send electronic mail, or check out the latest software. Since most modems have built-in fax capabilities, you also can send or receive fax transmissions at your desktop. No more time is wasted waiting in line at the office fax machine or retrieving transmissions from the mail room. Moreover, when you fax from your computer, sensitive files remain confidential.

There are other advantages to computer-originated faxes. Documents sent via computer are digitized rather than scanned. They look sharper than printed materials sent from a standalone fax machine. With computer faxing, there's no need for paper, no trays ill-equipped to handle multipage documents, no pages sent upside down or in the wrong order, and no paper jams. Electronic faxes can be printed onto quality paper (if you choose to print at all), and you never run out of paper during transmissions.

While every fax/modem comes with appropriate software for data/fax communications, bundled applications tend to be "plain vanilla" offerings. For example, some lack annotation tools to mark a fax with comments or highlight important text. Also, freebie fax software may not support Optical Character Recognition (OCR). Without OCR, a fax cannot be edited as a text file.

To help you get all the fax, we examined three user-friendly Windows fax packages. These applications were tested on an external SupraFAXModem 288. Each lets you fax directly from any Windows program, and all include phone book-style directories for push-button fax dialing. Only two packages, however, have built-in annotation tools and OCR.

## BitWare V/F/D, V3.2.4

When Cheyenne Communications acquired Bit Software in 1994, it transformed the popular *BitFax* and *BitCom* fax/modem packages into *BitWare* for Windows. BitWare combines fax, voice, and data communications in one user-friendly package at a price you'd expect to pay for standalone fax software only. The program is relatively easy to use. It detects your fax/modem type and COM port during installation. You can send or receive faxes by clicking on labeled icons in the BitWare toolbar.

When working in another application, you select Printer Setup to choose BitWare as the active printer, then issue a Print command. If you have *Microsoft Word for Windows*, *Microsoft Excel*, *Lotus Ami Pro*, or *WordPerfect for Windows*, BitWare provides special macros enabling you to fax an open document without issuing Print Setup and Print commands. You must manually activate these macros, however, and it's not always easy to find the directory in which the BitFax macro is located.

After activation, BitWare places a Send Fax button on Word's Standard Toolbar and a Send Fax command in Word's File menu. Clicking either fax option produces BitWare's Dial Fax dialog box.

During a fax transmission, BitWare lets you know the transmission's connect speed, the connect time, and the estimated time remaining in the transmission. You can schedule a fax for a future time and date, keep logs of faxes sent and received, and view a fax either before you send it or after it's received. You also can print a fax or save it to disk in a non-BitWare fax format. While you're waiting to receive a fax, BitWare lets other software access your system's idle COM port.

The BitWare Phone Book keeps a handy list of fax recipients and their fax numbers. BitWare lets you import phone book lists from other applications, as long as files are saved in *dBASE*, *WinFax PRO* 3.0, or ASCII format. (The American Standard Code for Information Interchange is a widely used, text-only file format.) A special Phone Book option creates phone book "groups" with names of fax recipients who regularly receive the same fax. When you want to "broadcast" a fax (send the same fax to several recipients), just select the group name from the Phone Book dialog box.

BitWare is convenient, affordable, and functional but not as robust as other fax packages. While you can create a cover page with company logo and signature, you cannot modify a cover sheet design. In addition, you can view, but not annotate, a received fax. Moreover, the current version lacks OCR capabilities, and incoming faxes cannot be converted to ASCII text. Furthermore, while BitWare automatically recognized our SupraFAXModem 288 at installation, we were

unable to register electronically using the toll-free fax number provided.

## FaxWorks PRO 3.0

*FaxWorks PRO* (FP) comes with everything you need to send, receive, and manage fax transmissions. It even includes a DOS TSR (Fwdrv.exe) so you can send and receive faxes when you're not running Windows. First-time users will find installation a breeze. FP walks you through the process, asking questions about how you want to use the program and interpreting your responses. Several installation dialog boxes have detailed, plain English instructions. Many include a Help button for context-sensitive assistance. FP automatically identifies your modem, then checks the device's fax capabilities, speed, and phone line connection.

FP's unparalleled ease of use comes from its yellow Cue Cards. These provide pop-up information about most program buttons and menu items. If Cue Cards prove distracting, you can disable them and refer to the one-line description of button or menu commands, which appears in the status bar at the bottom of the screen.

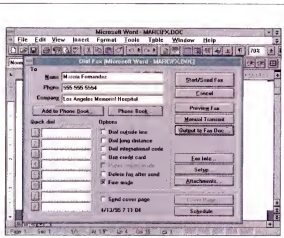
There are several ways to send an FP fax. Choose Quick Fax (Fax menu or the QFAX button on the Toolbar) to transmit a one-page fax with a note generated from within FP. You even can schedule a transmission time and date. FP also lets you send a fax from any Windows application by selecting the Print command if the FP fax driver is set as the current printer. Unlike BitWare, FP lacks macro options for faxing from within popular Windows applications. Like BitWare, FP has Automatic Fax Forward capabilities, enabling FP to forward incoming faxes to another location when you're away from the office.

With FP's Phone Book utilities, you can create multiple phone books to store information about fax recipients. Import options let you bring in phone book files saved in dBASE, *WinFax*, *FAXit*, or .TXT format. A fax may be sent to a single recipient, or group, in any FP phone book.

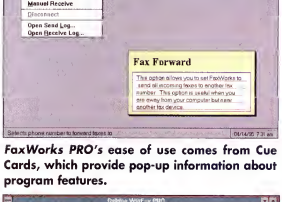
FP comes with several cover sheet templates. These can be customized with a company logo or graphic from the program's clip art library. If you've faxed yourself documents with copies of your signature, you can save these signatures as an image for use with other fax transmissions.

FP's Fax Setup dialog box configures the program's Receive Settings. You can have FP notify you of an incoming fax, print automatically on reception, or answer in fax mode after a set number of rings. FP features both OCR and scanning capabilities. With OCR, any fax received can be converted to ASCII text and saved in a particular application format. With FP's scan support, you can scan documents and graphics directly into the program, then use the program's drawing tools to clean up or enhance the image for use in other faxes.

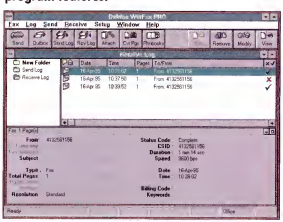
FP's FaxTracker function provides powerful fax management options. In addition to viewing all faxes sent or received, you can store faxes in special File Cabinet folders for later access. FaxWorks PRO is a program with much to recommend it.




***BitWare's* Macro function installs a Send Fax button, which produces a Dial Fax dialog box, on Word's Standard Toolbar.**




***FaxWorks PRO's* ease of use comes from Cue Cards, which provide pop-up information about program features.**




**The multiple window interface in *WinFax PRO* has a busy, and sometimes disorienting, look.**

## WinFax PRO 4.0

*WinFax PRO* (WFP) ships either as a standalone product or as one of two applications in Delrina's *Communications Suite* 2.1. If you don't own a telecommunications application already, consider purchasing this suite, which gives you both WFP and *WinComm PRO*, v1.1. Together, these programs deliver a powerful, and affordable, fax/modem software solution. (For a review of the communications suite, see "Fax and Modem Communication: How Suite It Is" in this issue.)

WFP has all the features you'd expect from the industry's best-selling fax package. It includes annotation and OCR capabilities; event logs for send, receive, and scheduled transmissions; support for the popular TWAIN-compliant scanning technology, plus customizable phone books to store information about fax recipients. You can design your own fax cover pages with flexible tools and graphics, check the spelling of fax text, schedule a fax for future transmission, and even poll your computer from a remote location to retrieve faxes stored in WFP's Receive log.

Drag-and-drop options let you pick up and move items among WFP folders, group faxes for simultaneous transmission, or send a fax by dragging a faxable item to the Send button. Attachments may be appended to a fax transmission by clicking the files you want to send. Faxes can be saved in .TIF, .PCX, .BMP, or .FXS (WinFax native) file format.

## Windows Fax Software At A Glance

| | BitWare V/F/D V3.2.4 | FaxWorks Pro 3.0 | WinFax Pro 4.0 |
|---|---|---|---|
| User interface | Button toolbars; pull-down menus | Button toolbars; pull-down menus | Button toolbars; pull-down menus |
| Customizable toolbars | | | ✓ |
| Context-sensitive online help | ✓ | ✓ | ✓ |
| Customizable cover pages | | ✓ | ✓ |
| Clip art library | | ✓ | ✓ |
| Composes cover pages | | | |
| Integrated macro support for popular Windows word processors | ✓ | | ✓ |
| Lets you add your signature | ✓ | ✓ | ✓ |
| OCR capabilities | | ✓ | ✓ |
| Allows preview before sending | ✓ | ✓ | ✓ |
| Scan command | | ✓ | ✓ |
| Annotation and drawing tools | | ✓ | ✓ |
| Fax forwarding | ✓ | ✓ | ✓ |
| Fax broadcasting | ✓ | ✓ | ✓ |
| Commercial fax mailbox/broadcasting | | | ✓ (optional) |

Unfortunately, you pay a space premium for WFP's comprehensive toolkit. A full installation consumes 12.5 megabytes (MB).

During installation, WFP's setup tests COM ports for a fax device, lets you configure the modem for your hardware, and determines whether the modem is properly connected. The whole process, including fax registration via toll-free fax number, proceeded for us without a hitch. When registering WFP, you also can subscribe to two Delrina communication services: Fax Broadcast and Fax Mailbox. Fax Broadcast lets you send a fax to several people with a single phone call. Just send Delrina the fax and recipient list. With Fax MailBox, your received faxes are stored with Delrina until you're ready to retrieve them. You don't have to leave your PC turned on in unattended mode when you're not around.

You also can have WFP install application macros for Word, Excel, Ami Pro, or WordPerfect. WFP automatically places a WinFax command in Excel's File menu and macro icons for the selected Windows word processors in WFP's Program Manager group. Clicking on a WFP macro icon launches its macro installation. This approach is more convenient than BitWare's macro installation because you don't have to search for the hidden macro file in an application directory. An automatic Remove Macro button is available as well.

Novices will find WFP's multiple window interface less user-friendly than FaxWorks PRO's interface. Though context-sensitive online help is available from anywhere in the program, pull-down menus don't follow the familiar Windows File... Edit... structure. There are no "cue cards" or function descriptions that appear when the cursor rests on a particular button or command. (You must click and hold the mouse button on an icon for a description to appear.) WFP's interface has a cluttered look. Also, its OCR utility missed more characters than the OCR function in FaxWorks Pro, and users don't have as many file format options for saving converted fax files.

Issues of complexity notwithstanding, WinFax PRO is very flexible. You can customize its toolbars to suit your needs, touch up a fax by erasing or drawing on portions, stamp a fax with a bit map such as "DRAFT" or "APPROVED", forward a fax to another number, and, with a Class 1 modem, even send data files in their original format via Binary File Transfer instead of converting the fax to a bit-mapped image. Intermediate and advanced computer users are sure to appreciate its robust feature set.

Remember that the fax software bundled with your modem lets you get the job done. If your budget is tight and you can live without amenities, stick with the no-frills, bundled package. If faxing is your business, however, or if you just want more control over content and apperance, try one of our big three. ●

*by Carol S. Holzberg, Ph.D.*

### For More Information:

*BitWare V/F/D for Windows, V3.2.4*
$99
Cheyenne Software
(800) 243-9462
(516) 484-5110

*FaxWorks PRO 3.0*
$99
Global Village Communication
(800) 329-9675
(408) 523-1000

*WinFax PRO 4.0*
$129 (with WinComm PRO 1.1 as Delrina Communications Suite 2.1, $179)
Delrina
(800) 268-6082
(408) 363-2345

**System requirements:**
***BitWare V/F/D for Windows, V3.2.4***—Class 1, 2, or CAS-compatible modem; Windows 3.1; DOS 3.1 or newer; 386 or higher CPU; 9MB available hard disk space; 4MB RAM; to use software's voice features or high-speed (faster than 14.4kbps) features with an external modem, you must install a fast I/O card with a 16550 UART chip.
***Faxworks PRO 3.0***—Class 1,2, or CAS-compatible fax/modem; 386 or 486 CPU; Windows 3.1; mouse; 4MB RAM; hard drive with 5MB available space.
***WinFax PRO 4.0***—Compatible fax/modem; Windows 3.1; 12MB available hard disk space for minimum installation, 17MB for full installation; 4MB RAM.

# Format Follows Function

Downloading a large graphic, sound, or application file can take a long time. As the data dribbles into your hard drive, you begin to drum your fingers, maybe do some dishes. At least you know that when it's over, you'll see some results.

Unless you find the file on your disk and notice it contains only some garbled characters. Unless what you thought would be a picture of "Star Trek's" Capt. Picard looks more like a tragic 20-keyboard pileup along your off-ramp from the Information Superhighway.

Now is not the time to fret. The downloading deity probably hasn't targeted you for destruction. To get the most from that modem and the information it can access, you just have to learn a few technical items from the world of file formats.

**File formats** are standardized techniques of storing data—such as images, sounds, and text—in ways computers can understand. Many file formats also **compress** files to different extents. Compression is a way of making big, ponderous files smaller. Small files take up less disk space when they are stored and can be transferred over phone lines faster. Since storage space and phone time both cost money, compression makes almost any file less costly to keep or retrieve.

There are several ways to encode data and compress it, depending on what type of file you are dealing with. For example, let's examine an image file. That picture you're thinking about downloading to your computer screen started out as a picture somewhere else—maybe as a photograph, artwork, or a computer-drawn graphic. In order to store and then send this image to you, the creator must convert it into a form computers understand. Rather than relying on eyes, computers view the world through numbers and other characters.

The picture must be reduced to a list of characters other computers will comprehend. First, the picture is divided up into **pixels**, or tiny dots that together make up the graphic. One image might contain thousands of pixels. Each dot is a specific color and location, which can be expressed as a code of numbers and letters. When another computer reads this code, it knows what colors and locations are indicated by all the numbers, and it can reconstruct the picture.

There are many different codes, or formats, that could be used. Various software developers and computer companies have agreed on a few of these formats to make things easier for all users. Instead of every computer speaking its own language, we only have to deal with a short list of universally recognized protocols. We will assume that our Capt. Picard image has been transformed into one of the more popular formats for pictures called the **Graphic Interchange Format**, which uses files with the .GIF extension.

Most of these formats aren't content simply to list off colors and locations. If you look at a picture, you'll probably find a lot of areas that are the same color. In that picture of Capt. Picard, many of the pixels forming the top of his head probably have the same color value. Programs that can store pictures as .GIF files realize this and get lazy. Instead of saying, "Pixel 1,234: Color 13; Pixel 1,235: Color 13; etc." they just say "OK, all the pixels in this area: Color 13." Specifying an entire area as the same color turns a huge list of pixel numbers and colors into one sentence, which takes up less space. The actual algorithms used in GIF and other formats are more complicated, but this is the general idea.

When the entire picture is transformed into a .GIF file, Capt. Picard finds himself fully compressed. He's not the same picture he once was. To view him again, you must use software that knows the same codes GIF used to squish him. Any graphic viewers that don't know how GIF works won't be able to display that picture. In order to see the good captain, you have to know what format he was stored in and have the correct viewing software on hand.

GIF isn't the only way to compress graphic files, and graphic files aren't the only thing you'll find compressed in the downloadable netherworld. In fact, there is a whole herd of formats out there for different types of files. To make things more confusing, computer users often refer to file types by the names of their compression formats. Talk of GIF, WAV, MPEG, and all their cousins can fill your screen with more acronyms than a Defense Department hearing. One universal type of compression would make it easier, but in the real world, different types of compression are more efficient for different types of files. That's where the alphabet soup comes in.

## Executable Files

Executable files, the files that you can run as programs, line up in droves for the chance to be downloaded into your computer. In the PC realm, most of these files will be stored in the ZIP compression format. You can recognize a

zipped file by the .ZIP file extension. For example, Shrware.zip would be a zipped version of the file or files that make up an application called *Shrware*. There may be one file or many; the *PKZIP* utility puts them all together in one compressed package.

Mark Gresbach is the head of technical support for compression program developers PKWare. PKWare manufactures PKZIP and *PKUNZIP*, two popular programs that let users package a .ZIP file and then decompress it again. Gresbach says the magic behind ZIP is based on redundancy.

A compression program starts its job by looking through the file to be compressed. Along the way, it finds certain characters or strings of characters repeated in different places. The program assigns a new, smaller string to stand in for the many longer, redundant strings. In this way, the file shrinks into a kind of shorthand. When compression is completed, the file is renamed with a .ZIP extension, so others know what has happened.

How much a particular file can be compressed depends on its redundancy, Gresbach says.

"Some compress very well, others don't," he says. Generally, you can expect a 50% size reduction when zipping a file. A few might compress as much as 95%, while others might only compress a tiny amount.

Before you can use a zipped file, you must decompress it back to its former grandeur. Depending on what service you used to download the file, it may be decompressed for you automatically as you sign off. America Online's interface works this way, unzipping files at the end of each session.

For many users, though, unzipping is a necessary task. CompuServe's *WinCIM* interface won't unzip downloaded files. Neither will most local or regional Internet access providers' software. Unzipping programs, however, live in many corners around cyberspace. CompuServe users can find many helpful downloading programs such as PKUNZIP by typing **go pcnew**. Those on the Internet can find PKUNZIP shareware at a variety of locations. You also can order a version direct from PKWare (414/354-8699) for $47.

## Graphics Files

There are almost as many graphic file formats as there are graphics files. However, the average user isn't likely to run across most of them. ATT, CLP, TIF, IMG, KFX, PGL, WMF . . . the list goes on and on. The only three PC users need to commit to memory are GIF, **JPEG**, and **BMP**.

Files ending with the .BMP, or Bit MaP, extension are the easiest to use because Windows knows all about them. The Paintbrush program that comes with Windows views and stores files in the bitmap format. Paintbrush also will view .PCX files. Much more popular than either of these, however, are GIF and JPEG (files with the .JPG extension), which stands for Joint Photographics Experts Group format.

GIF and JPEG are different from each other in the degree to which they compress image files. GIF is known as a **lossless compression format**. As described above, it compresses files by grouping together areas of the same color. JPEG goes a step further by grouping together areas of nearly the same color. This is called a "lossy" format because the image will lose a few details in the process, depending on how much it is compressed. The loss isn't very noticeable on many images, however, and the extra

# Various Viewers

Some of the most popular downloaded files are graphics. You can find pictures of almost anything online, from the moons of Jupiter to dissected animals. But finding them won't do any good if you can't look at them.

If you download many files, you can forget about using the programs that came with Windows to help you out. Paintbrush is fine for what it does, but it is able to display only a couple of graphic formats that aren't very common out in the electronic wilds. Most images you find will be stored in Graphic Interchange Format, known as GIF, or Joint Photographics Experts Group format, called JPEG or JPG (see article). At the sight of one of these kinds of files, Paintbrush throws up its electronic arms and walks away in frustration.

Some commercial online service interfaces, such as America Online and CompuServe's *WinCIM*, will display .GIF files without any extra software needed. If you use an online service and the interface doesn't display the kinds of graphics files you want to download, you easily can find many shareware image viewers by searching your services' software libraries.

Users with a link to the Internet can find a multitude of programs via File Transfer Protocol or the World Wide Web. Your access provider should be able to help you with questions.

To save the time of searching out and downloading a viewing application, you could just go down to your favorite software store and buy one. Simple, relatively low-cost viewers are available in increasing numbers. Here are a few representative samples of what we found on the market:

*OOgler, the Universal Picture Viewer*
Inset
(203) 740-2400
Price: $15

This is a simple and easy-to-use viewing program that will understand almost any file format you throw at it. It also is fairly cheap.

*PC Paintbrush for Windows*
Wordstar International
(415) 382-8000
Price: $35

This program is a little like a souped-up version of Paintbrush. It has the capability to view or store graphics you draw or download in many different formats.

*Graphics Converter Gold*
IMSI
(415) 257-3000
Price: $40

Programs like this one cost a little more than simple viewers, but they have the capability to convert files to different formats as well as view them.

*HiJaak Graphics Suite*
Inset
(203) 740-2400
Price: $75

Some programs, like this one, combine all sorts of multimedia viewers and players into one package for those who really dig downloading. This suite recognizes MIDI music files, movie files, and virtually any graphic format. You're set with a program like this. ●

# Welcome Tagalongs

**The extensions attached to the ends of files make it easy to identify the files' format.**

| | |
|---|---|
| **.AVI—** | Movie files in Microsoft's Audio Video Interleaved format. |
| **.BMP—** | Bit-mapped files used for graphics, such as Windows wallpaper, or pictures. They usually can be edited in Windows Paintbrush. |
| **.EXE—** | Program files; they actually run a particular program. The majority of DOS programs and nearly all Windows programs use .EXE files. |
| **.GIF—** | Graphics and picture files in a compressed format. Paintbrush can't view .GIF files; a standalone graphics program is required to view them. |
| **.JPG—** | Picture files. Paintbrush can't view these files; a standalone graphics program is required. |
| **.MID—** | Sound files that contain musical notes. |
| **.MPG—** | Movie files. Media Player can't view these files; a standalone video program is required. |
| **.PCX—** | Files used with Windows Paintbrush. |
| **.PIX—** | Graphics files. |
| **.QTW—** | Movie files in the QuickTime for Windows format. |
| **.RLE—** | Picture files. Paintbrush can't view these files, but they can be used as wallpaper in Windows. |
| **.VOC—** | Sound files. They won't work with Media Player or Sound Recorder; they're usually used with DOS sound boards. |
| **.WAV—** | Sound files that work with Media Player and Sound Recorder. |
| **.ZIP—** | Files compressed with the *PKZIP* program and requiring *PKUNZIP* program for decompression. ● |

compression makes the file even smaller, which we have learned makes for easier storage and faster transmission.

Paintbrush has never heard of GIF and JPEG, so to view these types of image files, you'll need additional software (see the sidebar "Various Viewers").

## Sound Files

For PCs, the two sound formats to watch for are **WAV** and **AU**. .WAV files are the least complicated of the two—Windows' Sound Recorder, in the Accessories program group, plays and records .WAVs, assuming your computer has a sound card. (If it ever makes sounds beyond a simple beep, it probably has a sound card).

AU, or raw audio, files will require a separate player. Sound Recorder doesn't recognize the format. You see more and more .WAV files popping up around cyberspace, but many downloadable sounds are still in AU format, especially out on the open Internet. Windows doesn't come equipped with anything that plays AU files, so unless an AU player came with your sound card, you will have to find some extra software to listen to them. Many shareware programs available on the commercial online services and the Internet support the AU format.

**MIDI** (files with the extension .MID), or Musical Instrument Digital Interface, is the standard format for digitized songs. If you have a sound card, you'll probably be able to play these files with software that came with the card. Check the manuals that came with your computer or sound card for more information.

## Multimedia Files

As the average home computer has become more powerful, a variety of multimedia files have showed up for your downloading pleasure. Depending on your computer's memory and processor speed, these multimedia files may not be very exciting. A movie cruising along at the speed of two or three frames per minute makes for less than entertaining multimedia.

If you have a muscle machine sitting on your desk, you should know the three main movie formats for PCs, which are **AVI** (Microsoft's Audio Video Interleaved), **MPEG** (the Moving Picture Experts Group format), and **QuickTime** for Windows (a PC version of the Macintosh multimedia format). Each of these is a different attempt to tackle the enormous task of compressing the wagonloads of information that go into a multimedia display containing moving pictures and sounds. AVI files end with the .AVI extension, .MPG indicates an MPEG, and .QTW is the QuickTime extension.

Armed with your list of file extensions, you can sortie into cyberspace and bring back files alive. By looking at the last three letters of the file name, we know Picard.gif is a picture of the Captain, Picard.wav is words of wisdom from our spacefaring friend, and Picard.avi is an all-out multimedia extravaganza. Picard.zip might be about anything, given the fact that ZIP is such a common compression format. However, it is most likely not a picture, sound, or movie. It may be a group of files dealing with Capt. Picard or some type of executable file, such as a game.

Whatever it is, keep in mind that it probably still will take a long time to download. ●

*by Alan Phelps*


# E-mail And Productivity:
## Can They Go Hand In Hand?

Productivity issues are paramount in business. Managers constantly try to develop methods for getting the most out of their employees; businesses attempt to limit distractions in the office.

In the past, one of the biggest hindrances to productivity in the office was the impromptu meetings around the water cooler. More recently, the fax machine was the gathering point. In today's computer-driven workplace, though, some productivity-driven bosses consider electronic mail their sworn enemy.

While the ideal use of E-mail—for widespread messaging, instant business-related communication between employees and business associates, and transmitting of files—is the perfect tool for enhancing communication and productivity, personal E-mails and time-wasting correspondence make some businesses leery of letting their employees use E-mail. We'll show you how some businesses respond to such issues.

### The "Futz Factor"

Computer-related time-wasting, such as playing games and sending irrelevant E-mail, is annoying for business owners. SBT Accounting Systems of San Rafael, Calif., has labeled it the "futz factor." When the company surveyed 6,000 personal computer users in business, it found about 5-1/2 hours per employee per workweek are wasted. The biggest time-waster mentioned in the survey is waiting for a computer program to open or for a modem connection to be made. For companies with E-mail systems, though, unnecessary E-mail was a major futz factor, according to SBT vice president David Harris.

"In medium-sized businesses in America, you don't have 100% of the people with E-mail yet," Harris says. "But there are (companies) where people are spending a lot of time on E-mail. It's become the voice mail of the '90s."

Surprisingly, personal E-mails weren't mentioned in the survey as the most troublesome time-waster.

"It's the few people who tend to write three-page E-mails. They blast it out to too many people, and everyone is reading this one-hour memo. Then half the people feel obligated to respond to it point by point . . . . The personal stuff tends to be little snippets, like 'Hey, I'll meet you for lunch.' Unfortunately, that's probably a model style and technique. They're little, one-sentence (messages), and that's when E-mail does really well."

For businesses interested in determining the amount of time they're wasting, SBT offers its "Futz Factor Survey" for free. Call (800) 944-1000 and ask for the survey by name. SBT will fax it to your business, and it then can be administered internally.

### E-mail vs. Productivity

Can productivity and E-mail coexist? Most businesses we surveyed think they can (see accompanying chart).

E-mail and online services are the best method of encouraging productivity for some businesses, according to David Goldstein of Eccentric Software in Corvallis, Ore.

"We encourage our employees and contractors to use E-mail as much as possible," he says. "We run a virtual office in which most of

our employees and contractors work from home, sometimes over several time zones. E-mail is the most efficient means of communication under these circumstances."

Small- to medium-sized companies generally can't spare a staff member to monitor E-mail usage. Mike Davis of Extended Systems in Boise, Idaho, says personal E-mails occur at his company, but they don't cause a problem.

"We do not have the resources to monitor personal E-mail messages," Davis says. "I guess (if) these personal messages started getting excessive and consuming valuable network bandwidth, we would have to impose usage restrictions. In its current form, communicating by E-mail has become a strong part of our corporate culture . . . . We encourage employees to use E-mail to do their jobs more effectively."

At Rourke & Co. in Boston, E-mail serves as a vital communications tool and gives employees a chance to take an occasional break from the work routine. Account manager Tara Finney says the company's inhouse E-mail system is used for alerting staff about important industry news or staff meetings; communicating with the San Jose, Calif., office; and contacting traveling employees, among other functions. The E-mail system has a fun side, too, and Rourke & Co. has an interesting method for treating such messages.

"We do send personal messages, funny jokes, or E-mails we receive over the Internet," Finney says. "We have a special mailbox for things of this nature called the 'Gossip Box.' This way, we do not disturb employees who are disinterested in these messages or create additional E-mail traffic."

SBT uses E-mail user groups to help employees learn to use E-mail properly. The group meets once a week.

"Maybe you've got a group of 50 people in a company that use E-mail," Harris says. "If you have five people that go and have this meeting, they become the leaders and influencers who get people focused on doing short communications and avoiding the groups like trivia groups and joke groups.

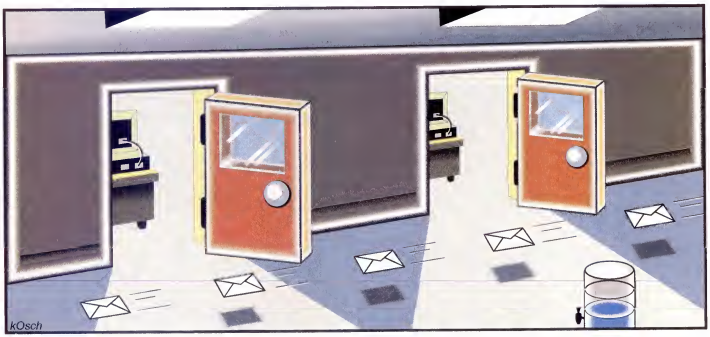
"You can't manage people's business habits by edict," he says. "You can try, but then it becomes this big secret thing like game-playing, and they do it on the sly . . . . It's not management telling people what to do. It's people from the internal user group making suggestions. We've tried it both ways. (With rules) there was this rebellion. This is like teaching people how to use telephones or any standard business tool, and you just do it through leadership and training." ●

*by Kyle Schurman*

# Corporate E-mail Use

| Company | Do you use inhouse E-mail? | Any restrictions? | Do you go online? | Any restrictions? | Comments |
|---|---|---|---|---|---|
| Copithorne & Bellows<br>Santa Clara, Calif. | Yes | No | Yes | No | ----- |
| Design Science<br>Long Beach, Calif. | Yes | No | Yes | No, but only one phone line for network modem restricts the company to having one user online at a time. | Trying to phase out all online service E-mail addresses and use only Internet addresses. |
| Eccentric Software<br>Seattle | No<br>(see comments) | ----- | Yes | No | Eccentric uses and many telecommuters so the company uses online service and Internet E-mail in lieu of "inhouse" E-mail |
| Evergreen Technologies<br>Corvallis, Ore. | Yes | No | Yes | No | ----- |
| Extended Systems<br>Boise, Idaho | Yes | No | Yes | Yes, but employees must have manager approval before gaining access to the Internet | The inhouse E-mail system connects the company's two sites in Boise, Idaho, and Bozeman, Mont. |
| ForeFront<br>Boulder, Colo. | No<br>(see comments) | ----- | Yes | No | ForeFront has 12 employees, so "we usually yell if we want to talk to someone." Employees use Internet E-mail |
| GCI Jennings<br>San Francisco | Yes | No | Yes | Yes, Lexis/Nexis only can be accessed during afternoon hours; no restrictions on other online services | ----- |
| Intel Corp.<br>Santa Clara, Calif. | Yes | No | Yes | No | ----- |
| Media Vision<br>Fremont , Calif. | Yes | No | Yes | No | ----- |
| Microcom<br>Norwood, Mass. | Yes | No | Yes | No | ----- |
| Microsoft<br>Redmond, Wash. | Yes | No | Yes | No | ----- |
| Number Nine<br>Lexington, Mass. | Yes | No | Yes | No | ----- |
| PC Novice<br>(published by Peed Corp.)<br>Lincoln, Neb | Yes | No | Yes | No | Not all employees company-wide use online services, but entire writing staff has access |
| Rourke & Co.<br>Boston | Yes | No | Yes | No | ----- |
| SBT Accounting Systems<br>San Rafael, Calif. | Yes | No | Yes | No | ----- |
| Sirius<br>Scottsdale, Ariz. | Yes | No | Yes | Yes, two employees use the Internet for research, all others can access Internet E-mail | ----- |
| The Weber Group<br>Cambridge, Mass. | Yes | No | Yes | No | E-mail helps the company's many offices keep in contact. |
| Waggener-Edstrom<br>Bellevue, Wash. | Yes | No | Yes | No | ----- |

# MS Mail vs. Lotus cc:Mail: Which Is Better?




Conventional mail service may be fine for birthday wishes or holiday greetings, but businesses frequently need to exchange information more rapidly and cost-effectively. It can take Uncle Sam several days to deliver a letter, unless you spend big bucks for Priority or Express Mail. That's why electronic mail (E-mail) has become so popular.

Basically, there are two kinds of E-mail systems. With a modem and a subscription to a commercial service, such as CompuServe or America Online, you can send or receive digital files composed online or offline. You use your modem to make a connection, then enter the necessary commands to create or send your message. When someone sends you a file, it lands in your inbox. Special options let you read this document on-screen, output it to a printer, or download it to disk.

For example, CompuServe Mail lets you communicate with any other CompuServe member regardless of physical location or organizational boundary. Special CompuServe gateways transmit messages to and from subscribers on services such as Western Union 400, British Telecom Messaging, Sprint Mail, and even the Internet. You also can use CompuServe to communicate with Group 3 fax machines, telex machines, or anyone having a postal address.

This kind of system works well for communications with colleagues or clients who work outside the office. But why go through a commercial E-mail service to reach someone down the hall? For intraoffice messaging, it's often less costly to send and receive electronic documents via the local computer network. In fact, some industry analysts suggest that companies set up local-area networks (LANs) primarily for the purpose of E-mail rather than to share printers or office files. And, if your company is dispersed across several buildings or states on a wide-area network (WAN), you'll find E-mail options for interoffice communications as well.

Today, there are several dedicated, network-based E-mail systems. *Lotus cc:Mail* and *Microsoft Mail*, each with more than 6.5 million mailboxes, are currently the most popular applications. Both have distinct personalities, offering several more features than just the ability to send, receive, and store messages. This month, we provide a summary of their E-mail options.

## Lotus cc:Mail

Lotus cc:Mail for Windows has an enhanced feature set offering a range of messaging services for LANs and WANs. The product handles everything from basic E-mail to group scheduling and forms, advanced searching, return receipts, and rules. With cc:Mail, you can exchange messages and attachments with other cc:Mail users in MS-DOS, Windows, Macintosh, OS/2, and UNIX environments or communicate with users on LANs or WANs, standalone PCs, mainframe-based E-mail systems, E-mail services (such as Sprint Mail), and fax machines.

A cc:Mail setup requires an administrator authorized to install a central cc:Mail post office database on a LAN file server and keep it running smoothly. Individual users, called local users, are given access privileges to this central post office. They're permitted

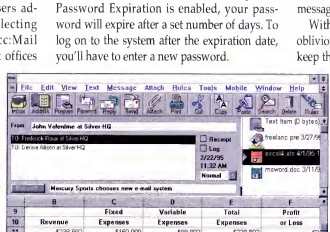
to run cc:Mail on a desktop computer if they've purchased an appropriate license. Every local user has a mailbox at the post office, with an Inbox for incoming messages. Messages may consist of text, graphics, sounds, files, or fax pages. Local users address their communications by selecting names from the post office's cc:Mail Directory, listing all people and post offices with whom communications are possible.

According to Lotus, cc:Mail actually comprises a family of more than 20 products. The basic cc:Mail package consists of a single Platform Pack. It includes the ADMIN program, enabling a cc:Mail administrator to create and manage one post office for a particular computing platform, plus software and documentation for a cc:Mail installation on a single user workstation. A separate cc:Fax product is required before cc:Mail users can send or receive fax messages to and from any Group 3 fax machine. Similarly, you must purchase a cc:Mail Router to handle connections between multiple cc:Mail post offices on one LAN or other LANs, WANs, and mail systems. Users on standalone machines who wish to communicate with others connected to a particular cc:Mail post office must purchase cc:Mail Remote.

You can use your regular word processor or cc:Mail's built-in text editor to compose messages. The cc:Mail text editor will check a document's spelling, find and replace text, or let you cut and paste text from other cc:Mail or ASCII messages. The editor's highlighting feature lets you annotate selected text. Uncompleted messages may be stored in a Drafts folder and finished later. A Mailing List messaging option lets you send missives to public or private groups of recipients. A public bulletin board at the cc:Mail post office holds messages that everyone on the system can read.

Messages may consist of multiple files, compressed for convenience. If you keep a copy of a message, you can use the Resend command to send it again to the same group of recipients. With cc:Mail's powerful rules capabilities, you can automate mail management tasks by defining how cc:Mail sorts, screens, or organizes incoming or outgoing mail. If you share a workstation with other users, you can password-protect your mailbox to prevent unauthorized access.

The cc:Mail Administrator provides a variety of security options to safeguard the post office and mail system. For example, if Password Expiration is enabled, your password will expire after a set number of days. To log on to the system after the expiration date, you'll have to enter a new password.




**Users of *Lotus cc:Mail* can attach tables created in *Excel* to a message before it's sent.**

cc:Mail's graphical application window has a title bar, menu bar, and toolbar (outfitted with graphical icons). The toolbar is called a SmartIcons Palette, with each button serving as a click-on shortcut to a frequently used program command. You can rearrange the palette's icon layout by dragging buttons to new locations or create customized SmartIcons sets. If you click the right mouse button while resting the cursor on an icon, a brief description of that SmartIcon's function appears in the status bar at the bottom of the screen.

Beneath the SmartIcons Palette are two resizable window panes. The Container pane on the left lists various types of cc:Mail message storage receptacles. They include Inbox, Drafts, Message Log, Trash, Folders, Bulletin Boards, and Archives. Only one container can be open at a time. The Contents (or message) pane to the right of the Container pane lists items stored in the currently open container. The Inbox (there only can be one) stores messages. When you open it, it lists the messages currently in your Inbox, identifying each one by author, date sent, size, and subject.

If you enable the logging feature of cc:Mail, a copy of any message sent will be stored in the Message Log container. If you enable the Trash folder, a deleted message will be stored there until permanently deleted from the folder. The Folder container holds all your private folders. Any of its subfolders can hold messages.

With cc:Mail, users send and receive mail, oblivious to the management tasks required to keep the system running smoothly. The system administrator, on the other hand, must contend with behind-the-scenes system operation, maintenance, and troubleshooting. For example, administrators install cc:Mail on the network file server. To safeguard post office files, they must enter a password when running the ADMIN program. Administrators also must create the cc:Mail Directory, with entries for all users and post offices on the system. Administrators are responsible for adding post office, remote user, and cc:Mail Mobile user gateways when necessary.

Administration utilities run under DOS and OS/2 but not Windows. cc:Mail customers receive 30 days of complimentary support for initial post office, mailboxes, or router installation at a site.

## Microsoft Mail

In April 1995, Electronic Mail & Messaging Systems identified MS Mail as the world's leading E-mail system, claiming it had 7 million mailboxes, 500,000 more than archrival cc:Mail. *MS Mail for PC Networks* is a powerful, yet flexible, E-mail system designed to work with Microsoft LAN Manager-compatible or Novell networks. The Server Package comes with MS-DOS server software and a license for one server, plus E-mail client software and 10 licenses for installation on computers running under Macintosh, MS-DOS, Windows, or OS/2. A single MS Mail network can have one or more post offices, each with its own list of MS Mail users.

Like cc:Mail, MS Mail consists of a family of products providing a range of electronic messaging options. The core of MS Mail is the Mail program, enabling clients (called user agents) to receive, read, write, attach files to, and send E-mail. This mail program also lets users manage the mail they receive, create a personalized storage system for archiving received items, and set up a personal address list. All

messages are encrypted before they're sent to the post office.

Bundled with the main program is a coupon for a free copy of *Microsoft Mail Connection*, a product that helps bridge AppleTalk and PC networks. MS Mail also includes a coupon for a free copy of Microsoft Workgroup Templates. This collection of 13 editable, predesigned templates lets multiple users collaborate on the same document; create electronic forms; record activities; and manage customers, projects, or action items. A gateway to AT&T Easylink is included free of charge as is a special Microsoft Fax printer driver called MS Fax.

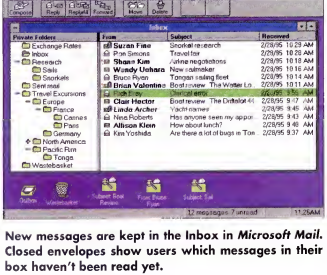
With MS Fax and the *MS Mail Gateway to Fax* (purchased separately), you can create fax image files to send to fax recipients and other MS Mail users. The optional MS Mail Gateway to Fax also lets you receive incoming faxes. Other gateways to messaging systems such as MCI Mail are available at an additional price. Remote or mobile users who wish to stay in touch with LAN-based MS Mail users must purchase a copy of *MS Remote for Windows*.

MS Mail installation involves creating and naming a post office for your E-mail system, identifying the network on which this mail system will run, and detailing which server files and modem scripts to install. Once the system is up and running, clients can send messages consisting of text, charts, pictures, and multimedia objects.

An MS Mail missive can have several file attachments, including documents created in other applications such as spreadsheets and word processors. If other applications are installed on your computer, you can launch them automatically by double-clicking on their attachment icon within a mail message. The MS Mail Windows client offers support for OLE, letting users paste portions of documents created in other applications into MS Mail with formatting intact. Support for drag-and-drop lets users move attachments or addressee names to and from any MS Mail message.

A file can be spell-checked before sending. You can request a return receipt so that you'll know your message has been read. If *Microsoft Excel* or *Microsoft Word for Windows* is installed on your system, MS Mail places commands in these applications, letting you address and send Excel and Word transmissions without first having to exit to MS Mail.

Like cc:Mail, every user on an MS Mail network is assigned a private named and password-protected mailbox. Each mailbox has an Inbox to store incoming messages in private folders. When you sign in, MS Mail displays your Inbox with its list of received messages. It positions a closed envelope icon beside messages you haven't read and an open envelope icon next to messages you have. Urgent communications are marked with an exclamation point. Each message includes information on the sender, subject, and date/time received. You can sort messages by these identifying criteria and instruct MS Mail to use the Sent Mail folder to keep a copy of every message you send.




**New messages are kept in the Inbox in *Microsoft Mail*. Closed envelopes show users which messages in their box haven't been read yet.**

The intuitive interface of MS Mail has a toolbar of click-on icons, which sits beneath the menu bar. Toolbar buttons let you compose new messages, reply to messages already received, forward messages to other mail users, print or delete your messages, or move (or copy) messages to specified folders. Deleted messages remain in the MS Mail wastebasket folder until you quit the program or change the Delete preferences in the Options menu.

When a message has several recipients, you can reply only to the sender or to everyone who received it. If you click on the Reply button after you read a message, MS Mail opens the Send Note form, places the name of the original message sender in the To box, the title of the original message in the Subject box (preceded by an RE: for reply), and a copy of the original message, which you can include or delete as necessary.

Like cc:Mail, you need not know a recipient's address. Simply select a recipient's name from the post office Address Book or from your Personal Address Book. If you frequently send messages to the same group of people, you can create a personal group name. When MS Mail sees the group name on a message recipient's list, it automatically sends everyone in the group a copy of the letter.

MS Mail requires a system administrator responsible for installing server files, maintaining user lists, managing file storage, and determining access privileges. Administrators can specify the external post offices with which a local post office can communicate, reset a user's password to the default password, return mail to a sender, or delete mail slated for an external post office if the sender so requests.

Administrators also can add as many as 100 custom commands to Mail menus to extend MS Mail capabilities. These may be implemented on individual workstations or at the server level for several Mail users. Unlike cc:Mail, MS Mail customers don't receive any complimentary support for the initial installation of a post office or mailboxes. If you need technical assistance, it's on a fee-for-service billing from day one. ●

*by Carol S. Holzberg, Ph.D.*

## For More Information:

*Lotus cc:Mail Desktop for Windows, v2.2*
$95 server software
$495 license pack for up to 10 users
Lotus Development Corp.
(800) 448-2500
(800) 343-5414

*Microsoft Mail Server, Electronic Mail System for PC Networks, v3.2*
$469 server plus 10 client licenses
$139 MS Mail Remote for Windows
Microsoft Corp.
(800) 426-9400
(206) 882-8080

# Getting Started With WordPerfect For DOS 6.0, Part II

## Designing And Editing Documents


As you learned last month, *WordPerfect for DOS 6.0* can look and function a lot like applications made for the Microsoft Windows operating environment. Its graphical appearance and mouse-operable commands can make using WordPerfect for DOS as easy as using a Windows word processor.

This is especially true when you're designing and editing your WordPerfect documents. We'll show you why in this month's WordPerfect tutorial. First, we'll walk you through page setup and text formatting. Then we'll cover editing techniques and the special writing tools that ship with WordPerfect.

### Your Page Setup

When you create your document, think about how you want your finished pages to appear. The way these pages are formatted and set up affects how your document looks. For example, by changing the page's margins or its orientation, you can alter your document's appearance.

**Margins.** WordPerfect gives you the option of changing document margins and paragraph margins.

**Document margins** are the white space between your text and the edge of a printed page. To change these, place the cursor in the document where you want to begin your margin changes, choose Margins from the Layout menu, and type new margin measurements for the Left, Top, Right, and Bottom Margin boxes under the Document Margins heading in the Margin Format box that appears. Choose OK to return to your document.

**Paragraph margins** are the white space surrounding a paragraph. In addition to adjusting a paragraph's left and right margins (which you'd do to indent a long quote), you also can adjust the spacing between paragraphs and the indentation of a paragraph's first line. To change paragraph margins, place the cursor on the page where you want the margin changes to take effect. Choose Margins from the Layout menu. Type the new settings in the Left and Right Margins, First Line, and Paragraph Spacing boxes under Paragraph Margins. Choose OK.

*NOTE: When you adjust the right or left paragraph margins, your text is adjusted from the document margin of one inch and you choose a left paragraph margin of one inch, the resulting left margin on this line of text will be two inches.*

**Page orientation.** You can change the size and orientation of your document from Page under the Layout menu. The Page dialog box has a Paper Size/Type option. When you click on this option, a Paper Size/Type dialog box appears. In this box, you can select paper sizes, such as letter, legal, envelope, etc. You also can change the paper's orientation. **Portrait** is the term used if the page is taller than it is wide. **Landscape** is used if a page is wider than it is tall.

Once your page is set as you want it to appear, you can begin typing and formatting your text.

### Formatting Text

To give your document personality, you can change fonts, make sections of text bigger, use bold and italicized text, center text, and place text in a border. Doing all of this with WordPerfect is easy.

**Typeface and size.** The typeface and point size you choose for your document will have a lot of bearing on your document's appearance. If you choose a bold, clean font, you'll get more attention than a script-style font. If you want a more soothing effect, however, you don't want to use a bold, thick font like those found in many advertising headlines. And, of course, you don't want the type to be too large or too small.

To change a font and its size, choose Font from the Font menu. The Font dialog box will appear. In this box, select the typeface you want to use (by double-clicking it or highlighting it and pressing ENTER) from the drop-down list of typefaces that appears when you click on the arrow or press SHIFT-F. In the Size box (to the right of the Font box), select the point size you want for your document. (As guidelines, most documents use 12-point type for body text and 18-point or larger sizes for headlines.) Click OK when you're done.

You also can change fonts and sizes using the ribbon. The second box from the left on the ribbon displays the font you're currently using. Click on the box to display a drop-down list of available typefaces. Select the typeface you want by double-clicking it. To the right of the Font box is the Size box, which displays the point size of the current font. Change the size using the drop-down list of point sizes or by typing a new point size in the box.

If you have a favorite typeface and want to make it the **default** typeface (the one used in every document unless it's specifically changed), you can designate it the Initial Font. To do this, choose Document from the Layout menu, then click on Initial Font. An Initial Font dialog box will appear. In this box, choose the font you'd like to make your default by double-clicking it in the drop-down list. To change the point size, select the correct size in the Size box located to the right of the Font box. To specify that these changes are for all the documents you create, click the All New Documents option under the Change Initial Font For: area, then click OK.

**Attributes.** Font attributes change the look of a font without changing the type style by setting off portions of text from the rest of the document. Some examples are **bold**, *italics*, or underline.

Attributes can be chosen in the Appearance box of the Font dialog box, which pops on-screen when you select Font from the Font menu. Just click the square to the left of the attribute you want to apply, making an *X* appear in it. You also can add these font attributes by selecting them from the Font menu. For example, if you're about to type a word you want to be bold, choose Bold from the Font menu (a check mark will appear next to it), type the word, choose Bold again from the Font menu (thus shutting off the bold attribute), and continue typing. You also can highlight a word you want to bold and choose Bold from the Font menu. The attribute will be applied to the highlighted word.

In addition, you can use keyboard commands to turn attributes on and off. For example, both F6 and the CTRL-B key combination will turn bold on and off. Pressing F8 or CTRL-U will turn underline on and off. To turn italics off and on, use CTRL-I.

**Justification.** The justification of text tells WordPerfect how the text should be lined up on the page. You have four choices: Right, Left, Center, and Full. Right justification lines the text up with the right margin; left justification lines the text up with the left margin; center justification centers the text between the margins; and full justification lines the text up with the right and left margins.

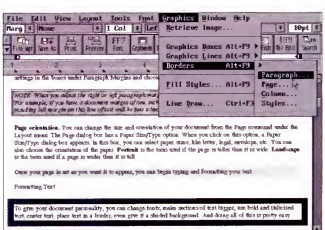
To change justification, place the cursor anywhere in the paragraph you want to change. (The change will affect the entire paragraph and subsequent text.) If you just want one paragraph's justification to change, highlight the paragraph. Then subsequent text won't be affected. Choose Justification from the Layout menu. A list with your choices will appear to the right of the drop-down menu. Select the justification you want by clicking it; the menus will disappear, and the justification will be applied.

You also can set justification using the ribbon. The justification box is located to the left of the Font box, in the middle of the ribbon. To change justification, select a new one from the list that appears when you click on the justification box. After you double-click the new justification, it will be applied.

**Borders and shading.** To spice up sections of a document, you can add a border. To make it stand out even more, you can "fill" the box, shading it in.

To add a border or shading to your document, place the cursor in the paragraph you want to border or shade and follow these directions. (The border will encompass that paragraph and all subsequent paragraphs. If you don't want subsequent paragraphs bordered, highlight the text you want a border around.)

1. Choose Borders from the Graphics menu. A submenu will appear.
2. Click on the Paragraph option. The Create Paragraph Border dialog box will appear.
3. To add the border, choose Border Style. A Border Styles dialog box pops on-screen. In it, you can select the type of border you want from a list that includes a single border, a double border, and a dashed border.
4. Double-click on the border you want, and the Create Paragraph Border dialog box will appear again. Now you can add shading.
5. Choose Fill Style to open the Fill Styles dialog box. In this box, you can select the shade with which to fill the paragraph. Your options range from zero to 80% shading.
6. Double-click on your choice, and the Create Paragraph Styles dialog box appears again. Click OK, applying the border and shading options you selected.




***WordPerfect*'s Borders lets you add borders and/or shading around paragraphs.**

## ■ Automatic Formatting

If you'd prefer to have WordPerfect do most of the formatting work for you, you can do so by using styles. Styles are similar to templates, or document blueprints that already have formatting codes. All you do is type your information, and the formatting—font, size, attributes, and justification—can be added automatically by selecting a style for the text. For example, if you write a newsletter with several articles and you want your headlines to be consistent in formatting, you can set up a

## No Highlighting Required

To remove items without highlighting them, move your cursor to where you want to begin deleting. Following is a list of often-used keystrokes and the items they delete. As you look through them, keep in mind that the BACKSPACE key deletes information to the left of the cursor, and the DELETE key deletes information to the right of the cursor.

- The BACKSPACE or DELETE keys, pressed alone, delete characters at the cursor.
- CTRL-BACKSPACE or CTRL-DELETE deletes a word at the cursor.
- HOME-BACKSPACE deletes everything from the cursor to the beginning of the current word.
- HOME-DELETE deletes everything from the cursor to the beginning of the next word.
- CTRL-END deletes everything from the cursor to the end of the line.
- CTRL-PAGE DOWN deletes everything from the cursor to the end of the page.

headline style and select it every time you type a headline. That way, if you ever decide to change the headline formatting, you can alter the style, and all text with that style will automatically change.

Let's look at creating and using styles.

**Creating a style.** To create a style, choose Styles from the Layout menu. A Style List dialog box will appear. Choose Create, and a Create Style dialog box pops on-screen. Type a name for the style in the Style Name box. You then need to choose a type in the Style Type box. Your choices are: Paragraph Style, which formats the paragraph in which the cursor is located or highlighted text; Character Style, which formats blocked text or text you're about to type (this is most useful for single words or short phrases); or Open Style, which affects all text from the cursor to the end of a document. Once you've selected these, choose OK.

The Edit Style dialog box appears. Type a description of your style in the Description box. (For a headline, you may want to type "Bolds and underlines text.") Then choose Style Contents. The Edit Style box will change slightly. You need to enter formatting codes in this box by pressing keystrokes and selecting menu items for things like indents, fonts, and page formats. As you select them, the codes for these attributes will appear in the Style Contents box. When you're done, press F7. This will take you back to the original Edit Style dialog box. Click OK when you're finished. You'll now be back at the Style List dialog box. To turn the style on in your document, choose Select. To exit without activating the style, choose Close.

**Using a style.** If you want to use a style, place the cursor where you want the style or highlight the text you want formatted in a style. Choose Styles from the Layout menu. Highlight the style you want to turn on, and choose Select at the bottom. The style will be implemented into your document.

You also can turn on styles from the ribbon. To do this, click the Style box (the second from the right), and a drop-down list of style choices will appear. Double-click the style you want, and it will be activated.

### Editing Your Documents

Once you have your document entered and formatted, there will be times when you want to make changes and corrections. WordPerfect has several editing procedures that we'll discuss here.

**Deleting text.** There are several ways to delete items from a WordPerfect document. The fastest way is to highlight them with the mouse and press either the DELETE or BACKSPACE keys. You also can delete text without highlighting it. (See the chart for more information on deleting without highlighting.)

*NOTE: You can undelete any of your last three deletions. Choose Undelete from the Edit menu, then choose either Restore to restore your last deletion or Previous Deletion to cycle through the last three deletions you've made. These deletions will appear in a different color on-screen. When you see the deletion you want restored, choose Restore. You also can use Undo to restore your last deletion to its original location. To do this, choose Undo from the Edit menu, and the last deletion will appear again.*

**Moving and copying text by drag-and-drop.** You easily can move or copy text from one place in a document to another by using drag-and-drop.

With this method, you first must highlight the text you want to move. Position the mouse pointer anywhere in the highlighted area, click the mouse button, and **drag** (hold the mouse button down) the mouse until the cursor is located where you want to move the text. Release the mouse button, and the text will move to this new location.

*NOTE: If you want to copy the text rather than move it, hold the CTRL key while you release the mouse button. The text will appear in the new location and the previous one.*

**Moving and copying text with Cut, Copy, and Paste.** You also can use Cut, Copy, and Paste to move and copy text within a document.

To move or copy information, highlight the text you want to move or copy. If you

want to move the text, choose Cut from the Edit menu; the text will disappear. If you want to copy the information, choose Copy from the Edit menu; the text will remain in its current location.

You then may paste the cut or copied information. First, place the cursor where you want to insert the information, then choose Paste from the Edit menu. The text will appear in this new location.

To make the process even easier, you can highlight the text and choose Cut and Paste or Copy and Paste from the Edit menu. The text will be cut or copied. Move your cursor to where you want the text to appear and press ENTER.

**Inserting symbols and characters.** At times, you'll want to insert special symbols in your documents. These can be bullets or symbols (like fractions or mathematical signs). WordPerfect comes with more than 1,500 characters and symbols, grouped in 15 character sets. You can look at and insert these symbols by using WordPerfect's Character functions.

To insert characters or symbols in your document, place the cursor where you want the symbol to appear. Choose WP Characters from the Font menu. The WordPerfect Characters dialog box will appear. In this box, you'll see a Number box, a Set box, and a Characters box. The Number box lets you specify a character number, if you know it. The Set box lets you choose from a list of character sets that includes math/scientific, typographic, and Japanese. Once you select a set, the characters in the set are displayed in the Characters box. To choose a character, click it with the mouse. Then click the Insert button. The dialog box will disappear, and the symbol will be seen in your document.

## Additional Tools

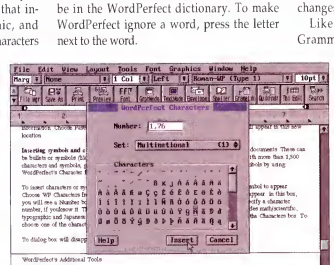
WordPerfect ships with several tools to help you create the best documents possible. These include a spell checker to correct spelling errors, a thesaurus to help you hunt for the perfect words, and a grammar checker to alert you to poor word usage.

**Spell checker.** Besides checking your document for misspelled words, the spell checker looks for duplicate words and certain types of capitalization errors. To begin the spell checker, choose Writing Tools from the Tools menu. Then choose Speller from the Writing Tools dialog box.

**WordPerfect ships with several tools to help you create the best documents possible.**

WordPerfect will ask you how much of the document you want it to check. Your choices are Word, Page, Document, or From Cursor. (You also can highlight text, and WordPerfect will spell check the selected text.) After you select an option, WordPerfect will begin checking for spelling errors.

When the spell checker finds a possible misspelled word, the word appears in the Word Not Found dialog box that pops on-screen. When this happens, WordPerfect will provide you with suggested spellings. If the word you want isn't in the suggestions, you can type it in the box. The word also may be correct but not be in the WordPerfect dictionary. To make WordPerfect ignore a word, press the letter next to the word.




**Add symbols to your document by opening the Font menu, selecting WP Characters, choosing a character set and character, and clicking Insert.**

**Thesaurus.** If you can't think of the word you want to use, WordPerfect provides you with a thesaurus that lets you look up synonyms and antonyms. To look up a word, move the cursor to the word you'd like to look up. Choose Writing Tools from the Tools menu, then choose Thesaurus.

The Thesaurus will appear on-screen with a list of synonyms and antonyms. (Antonyms are marked with *ant.*) If you'd like to explore synonyms and antonyms of words in this list, click the word and choose the Look Up key. If you find a word you'd like to use in your document in place of the original word, choose Replace.

**Grammatik.** The grammar checker lets you check your document for spelling, grammatical, and punctuation or style errors. To use Grammatik, choose Grammatik from the Writing Tools option under the Tools menu.

The Grammatik 5 program will begin as a new screen appears. In this screen, you can tell Grammatik to check your document using various styles such as technical, business, or fiction by choosing Writing Styles from the Preferences menu.

When you're ready to begin checking your document, choose the Interactive Check option in the lower left of the screen. With this checking method, the program will give you its analysis of possible errors but will wait for your input before it changes any wording.

Like spell checker, you can have Grammatik replace your wording with its suggestion by choosing the Replace option. You also can tell Grammatik to ignore the problem and leave it as is by clicking the Ignore Rule option.

To quit Grammatik and return to your document, choose Quit from the File menu.

## Spicing It Up

Now that you know how to create and edit your documents, correct problems, and format text, you probably want to learn how to spice up your pages even more. Graphics are a great way to do this. We'll cover them next month. See you then! ●

*by Lori Beckmann Johnson*

# Microsoft Word 6.0

## Working With Symbols


The fonts used to produce letters, reports, and memos aren't created equal. They're distinguished by appearance (serif vs. sans serif) and character set. Some typefaces have special symbols and punctuation marks, letting you enhance a document with items like bullets and dashes. Others consist only of design elements.

How do you know which symbols and special characters a font contains? *Microsoft Word for Windows* has a special Symbol command that not only displays all characters for a selected typeface but also lets you place a font's special characters in any Word document.

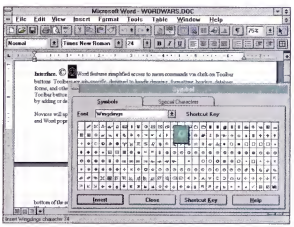
To use Symbol:

1. Choose Symbol from the Insert menu to display the Symbol dialog box. This dialog box remains on-screen as you work.
2. Click the Symbols tab, then use the arrow next to the Font box to scroll through a list of installed Symbol fonts.
3. To see the character set of a particular font while you're working in Word, you have two choices. First, you can choose Symbol, click the Symbols tab, and type the name of a font that doesn't appear in the Font drop-down box (e.g., Arial, Times New Roman). Or, from the Word document window, choose a font from the Font list in the Font box of the Formatting toolbar, select Symbol, click the Symbols tab, and choose Normal Text from the Font list. The character set for the font you selected appears in the MS Word window.
4. To see the character sets of other Symbol fonts installed on your system, choose a font from the Symbol dialog box's Font list.

### Inserting A Symbol

To insert a symbol, such as a smiley face, in an open Word document, follow these steps:

1. Position the cursor in the document where you'd like the symbol to appear. (If the Symbol dialog box is on-screen, you may want to close it.)




**The Symbol command lets you locate a character not visible on a regular keyboard.**

2. Choose Symbol from the Insert menu. If you select Normal Text from the Font list, the character set for the currently selected document font displays.
3. To find the symbol you'd like to insert, click once on any character in the chart to display a magnified view.
4. Press the mouse button, and drag across all symbols in the chart to see what's available. When you find the one you need, double-click on it to insert it in the open document. You can adjust an inserted symbol's point size and style by making selections from the font size and style lists in Word's Formatting toolbar.

Symbols inserted as Normal Text behave like ordinary characters. This means that you could ask Word to find one by performing the following steps:

1. Use the mouse to select it in the document.
2. Copy (CTRL-C) the selected symbol to the Clipboard.
3. Enter the Find command (CTRL-F) to bring up the Find dialog box.
4. Paste (CTRL-V) the character from the Clipboard into the Find What box.
5. Click Find Next to have Word search for the symbol's next occurrence in the open document.

Symbols inserted from fonts (other than Normal Text) available in the Symbol dialog box's Font list aren't recognized as conventional ASCII characters. Once they are inserted in your document, you can select them individually to adjust their size and style, but you can't use the Find/Replace commands to locate them in the text or apply global formatting.

One way of getting around the problem of working with nonconventional characters is to make Word think they're regular text. To convert a specially formatted symbol into an actual ASCII character, follow these steps:

1. Choose Symbol, then click the Symbols tab.
2. Choose a font from the Font list (e.g., Wingdings).
3. Click once on the desired character to select it, then return to the Symbol dialog box's Font list.
4. Select Normal Text. The appearance of the selected character now looks different from the special Wingdings character originally selected.
5. Double-click on the highlighted character, or click the Insert button.
6. Close the Symbol dialog box.
7. Back in the Word document, highlight the special character you've just inserted to select it, then click the font box arrow on the Formatting toolbar.
8. Select Wingdings from the drop-down list. The character displays as it first did when you chose it from the Symbol dialog box. Now you can have Word search for it as if it were a regular character through the Copy and Paste commands.

Even though the special character pastes in the Find What box looking like a regular ASCII character, MS Word knows exactly where to locate it in the open document. ●

*by Carol S. Holzberg, Ph.D.*

# Lotus 1-2-3 4.0

## Printing


our worksheets may look wonderful on-screen, but at some point you'll want to print them. *Lotus 1-2-3* 4.0 includes two menus from which to print worksheet data and graphs. Selecting Print from the Main menu is quickest and is used for data that does not have WYSIWYG (What You See Is What You Get) formatting. The :Print command is used for data with WYSIWYG formatting and for graphs placed into a worksheet as a graphic using :Graph, Add. (See the WYSIWYG Quick Study in our July issue.)

### Printing Basics

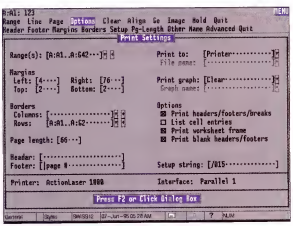
Your printer should have been installed when you installed Lotus 1-2-3. If you have more than one printer installed, use Print, Printer, Options, Advanced, Device, Name to make sure you are sending your data to the correct printer.

By choosing Main, Print, you can print your file on a printer, to a text or encoded file, or on a printer in the background while you continue working. Most often, you will print directly to your printer by choosing Print, Printer. The Print Settings dialog box and menu will appear on your screen, from which you can make your selections.

First, you must define your print range. Select Range from the Print Settings menu and specify the range of cells to print. Then from the Print Settings menu, select Align, Go, Page to signal that the printer paper is set at the top of the page, to send your data to the printer, and to advance to the next page. Select Quit to exit to READY mode. (In some cases, such as printing on a network and on some laser printers, the data does not print until you select Quit.)

To print a named graph, select Print, Printer, Image, Current (for a graph currently in memory) or Named-Graph (for a named graph).

If you are printing using :Print, the process is similar. Select :Print, Range, Set to specify the print range. Select Go from the :Print menu to send the data to the printer. If your worksheet contains a graph that was added using :Graph, Add, include the graph in your print range.




**The Print Settings dialog box provides many options for printing your worksheet data.**

### Printing Options

There are many options that change the way your data is printed. The most frequently used options are changing margins, selecting page breaks, printing borders, and printing headers and footers.

Select Print, Printer, Options to advance to the Options menu. Selecting Margins from the Options menu lets you change the left, right, top, and/or bottom margins. Note that you are specifying the character width of your text, not the width of your margins.

If you do not specify page breaks, 1-2-3 may advance to the next page at an awkward spot. Insert a page break command in your worksheet by moving the cell pointer to a blank row where you want the page to break and selecting Worksheet, Page. Four dots will appear in your worksheet to indicate your page break; to delete the command, erase the contents of that cell.

When you have a range that spans several pages, it's useful to set up borders. A border repeats specified columns or row headings on each page so you can have the same heading on the left side or top of each page. Select Borders from the Options menu, choose either Columns or Rows, and specify the border range. Do not include this range in your print range, or those cells will print twice.

To print a header or footer on each page, select Print, Options, Header (or Footer) and enter your text. The header will print on the line below the top margin, and the footer will print on the line above the bottom margin. When entering your text, you can divide it into left, middle, and right segments by using the | (split vertical bar). Without the |, text is left justified; text typed after one | is centered; text typed after a second | is right justified. Use # (number sign) to include a page number and @ (at sign) to print the current date. As an example, the header **@|Sales Report|Page #** prints as:

11-OCT-95 Sales Report Page 1

The :Print options are similar, although some menu commands differ. Select :Print, Layout to access margin and border commands, and select :Print, Layout, Titles for headers and footers. Use :Print, Preview to view your data on-screen before printing it.

### Advanced Options

Several other commands let you control your printed data. Use Print, Printer, Options, Advanced or :Print, Config to select such features as paper orientation, font, colors, pitch, and text line spacing and to specify a printer for the current print job.

Print the worksheet frame by selecting Print, Printer, Options, Borders, Frame or :Print, Settings, Frame, Yes. You can print your cell formulas by choosing Print, Printer, Options, Other, Cell-Formulas.

When printing, keep in mind that some features such as fonts and colors are printer dependent, and the printed data may appear different than that on your screen. ●

*by Diane Walkowiak*

# Ami Pro 3.0

## Converting WordPerfect Files


ld habits die hard. If you're used to doing things one way, it's hard to do them differently—even if the new way is easier. *Ami Pro* makes switching from *WordPerfect* easy. The program has a built-in tool, called the WordPerfect SwitchKit, that helps you break your WordPerfect habits while bringing you up to speed on how the same tasks are completed in Ami Pro. It also lets you easily convert your WordPerfect files to Ami Pro format.

### The SwitchKit

The WordPerfect SwitchKit lets you use Ami Pro in conjunction with the WordPerfect commands you're already familiar with. When you press a WordPerfect command, Ami Pro teaches you the key combinations and menu commands for completing the same tasks in Ami Pro.

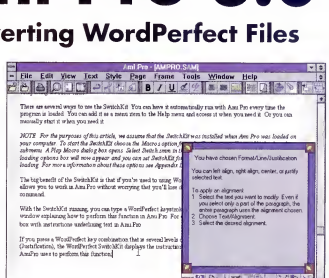
There are several ways to use the SwitchKit. You can have it automatically run with Ami Pro every time the program is loaded. You can add it as an item to the Help menu and access it when you need it. Or you can manually start it when you need it.

*NOTE: For this article, we assume that the SwitchKit was installed when Ami Pro was loaded on your computer. To start the SwitchKit, choose Macros from the Tools menu, then choose Playback. A Play Macro dialog box opens. Select Switch.smm in the Macros box and click OK. The SwitchKit loading options box will appear, and you can set SwitchKit for automatic loading, menu loading, or manual loading. For more information about these options, see Appendix D in your User's Guide.*

The big benefit of the SwitchKit is that if you're used to using WordPerfect, the SwitchKit can be a safety net; it lets you work in Ami Pro without worrying that you'll lose data when you accidentally enter a WordPerfect command.

### How It Works

The SwitchKit comes with several SmartIcons for SwitchKit functions. These icons work the same as the Ami Pro SmartIcons—click them with the mouse to perform the function. These functions include Print Instructions, Move Window, Demonstrate Steps, Context Sensitive Help, and Batch File Convert (which we'll cover later). Brief descriptions of the SmartIcons are given on the SwitchKit's Information window. To see this window, click the *I* with the circle around it.




**The WordPerfect SwitchKit shows you how to complete a task in *Ami Pro*, in case you accidentally enter a *WordPerfect* command.**

With the SwitchKit running, you can type a WordPerfect keystroke, and Ami Pro will display an instruction window explaining how to perform this function. For example, press F8, and Ami Pro displays a dialog box with instructions about underlining text.

If you want to use a WordPerfect key combination that's several levels deep, such as SHIFT-F8 (Format), 1 (Line), 3 (Justification), the WordPerfect SwitchKit displays an additional box giving you the WordPerfect function's options (like Line and Justification). After walking you through the WordPerfect options, the SwitchKit instruction window explains which key combinations Ami Pro uses to perform this function.

Besides helping out when you occasionally use a WordPerfect command in Ami Pro, SwitchKit can be a lifesaver if you have several WordPerfect files you want to use with your new word processor.

### Batch Converting Your Files

If you have lots of WordPerfect files, you'll want to take advantage of the SwitchKit Batch Converter. It lets you import all of your WordPerfect files into Ami Pro in a single step. In doing so, Ami Pro will recognize the WordPerfect documents' fonts, text attributes (like bold and italic), and special formatting (like centering, tables, and graphics).

The SwitchKit does this through its Batch Converter program, which converts multiple WordPerfect files—specified as files or as entire subdirectories—into Ami Pro format quickly and easily. The new Ami Pro files are stored in the same directory as the original WordPerfect files. The file names remain the same, except that Ami Pro changes the extension of its files to .SAM.

To use the Batch Converter, click the Batch File Convert icon on the SwitchKit window. The Batch Convert dialog box will appear. In the Convert From: dialog box, select the WordPerfect version you're converting the files from. In the Drives:, Directories:, and Files: list boxes, select the drive, directories, and file names where the WordPerfect files are located. To select more than one file at a time, highlight the files while pressing CTRL. When you've selected all of your files, click OK.

Once the files have been imported to Ami Pro, you may edit, save, or print them just as you would any Ami Pro file.

With the help you receive from the WordPerfect SwitchKit, you won't have any trouble switching word processors. Too bad all of our old habits aren't changed so easily! ●

*by Lori Beckmann Johnson*

# Excel 5.0

## Using Styles


If you want to express a certain style, you can alter your hair, your attire, even your attitude. Changing all these can take quite a while. It'd be easier if you could alter these traits all at once by saying, "I want to look sophisticated . . . or smart . . . or funny."

That's how Microsoft Corp.'s *Microsoft Excel* 5.0 treats styles. As you enter information into Excel's cells, you can format the text as you wish. The program lets you save a combination of formats (like bold and italic) as a style, which you name. To format cells with this combination of attributes, you tell Excel to format the cells using that style.

You can include six formats in a cell's style definition: number (like date or percent), font (including style and color), alignment (horizontal and vertical), borders, patterns (cell shading), and protection (locking and hiding). You don't need to use all six, though.

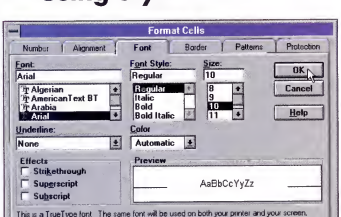
You may not have to define a style, however, because Excel comes with several built-in styles. Initially, all cells have the Normal style. In this style, number format is general, the font is Arial 10-point, alignment is general, there are no borders or patterns, and the protection is locked.

One big advantage of naming a style for spreadsheet cells is that if you decide you want to change the style, you can redefine it. All cells with that style automatically will change and include the new formats.

### Creating Styles

You can create a style by example or by selecting the formats you want.

If you already have a cell with the formats you want in your style, it's easiest to create the style by example. Select the cell with the correct formatting, and choose Style from the Format menu. A Style Name dialog box will appear. Type a name for the style in the box, and you'll notice that the format attributes change. Click OK.




**When creating or modifying a style, you'll select format traits from the Format Cells dialog box, which has tabs for Number, Alignment, and more.**

If you'd prefer to create a style by selecting the formats, choose Style from the Format menu. Type a name in the Style Name box. The style attributes are listed under the Style Includes heading. If you don't want a particular format included in the style, make sure the box to its left is blank. To change the formatting, click Modify. A Format Cells dialog box with tabs for each of the formatting areas will appear. On each tab, select the formats you want. When you're finished, click OK. You'll be back at the Style box. Click OK to define the style and apply it to the current cell. To define the style but not apply it, choose Add.

Once you've defined a style, applying it is easy. Select the cells you want to format, and choose Style from the Format menu. The Style dialog box will appear. Select the style name from the scroll-down list in the Style Name box, and click OK.

### Redefining Styles

As we mentioned earlier, the ability to change a style's formatting is one of the best reasons to use styles. You even can change format options on built-in styles like Normal.

To redefine a style, choose Format, then Style to reach the Style Name box. Select the name of the existing style that you wish to change. Choose the Modify button. The Format Cells dialog box will appear. Select the new formats you want on each of the tabs and click OK. Choose OK or Add, depending on whether or not you want to apply the format.

*NOTE: When applying a style to a cell, the style overrides any previous formatting. However, you can change the formatting without affecting the style.*

### Copying To Other Workbooks

In a new notebook, only the built-in styles are available. New styles must be copied from the notebook in which they were created to the new notebook before they can be used. To do this, both workbooks must be open.

Make the workbook to which you want to copy styles the active one. Choose Format, then Style, and the Style dialog box appears. Click the Merge button. Excel will display a list of open workbooks in a Merge Styles box. Select the name of the workbook that contains the styles you want to copy. Click OK to copy the styles from the selected workbook to the active workbook. Choose OK again to close the Style box.

To remove a style, choose Format, then Style. In the Style Name box, select the style you wish to delete. (Note that you can't delete the Normal style.) Choose Delete and click OK. The style will be removed, and cells formatted with that style revert to the Normal style.

Using styles in Excel spreadsheets may take some getting used to, but once you understand how they work, you can format your spreadsheets more efficiently. If only you could experiment with your personal style so easily. ●

*by Lori Beckmann Johnson*

# Quattro Pro 6.0

## Using SpeedFormat


*uattro Pro* 6.0 for Windows' unique spreadsheet formatting tool called SpeedFormat makes your spreadsheet look like a pro did the work. It performs its magic through the power of suggestion.

SpeedFormat provides examples of popular spreadsheet formats; the examples appear as an actual spreadsheet would look. Selecting a format using SpeedFormat is like shopping for clothing with that special "look." You browse SpeedFormat's store of available formats, selecting a format that fits your preference from the example spreadsheets.

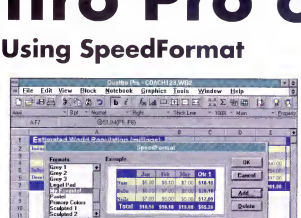
There's an entire inventory of spreadsheet formats to choose from, complete with different colors and fonts. You can choose a format that suits your general needs, then tailor each spreadsheet element until it looks exactly as you want.

Let's take a sample spreadsheet file found in Quattro Pro's main directory. You can use it to experiment without worrying about trashing your precious spreadsheet files.

### Selecting A Format

Choosing a format for your spreadsheet begins with the selection of spreadsheet cells, followed by the clicking of the SpeedFormat button. Here's the process:

1. Open the spreadsheet you wish to format.
2. Using your mouse, select the cells you wish to format.
3. Click on the SpeedFormat button. It looks like a simple grid colored with green, red, and white boxes. SpeedFormat opens, looking like the photo in this article.
4. Click any item on the Formats list to see examples of the spreadsheet formats kept in SpeedFormat's inventory. Remember, these are just examples.
5. Click each of the check boxes in the Include group to see how these options affect the Example spreadsheet shown. Leave a check box "on" if you like how the following Include options affect the example spreadsheet:




**The SpeedFormat option shows its example spreadsheet formats, along with formats you can create.**

- Numeric Format makes numbers in the spreadsheet look like dollar amounts.
- Font changes how fonts are displayed.
- Shading enables or disables colorful shading of rows and columns.
- The Text Color option causes dark text (when displayed on a dark background) to automatically reverse for easier reading.
- Alignment makes data in columns line up vertically.
- Line Drawing draws lines around the cells.
- Set Auto-Width condenses wider columns so they are not full of empty space.

6. Now it's time to choose formats for entire rows and columns. Click the check boxes to change the following format options:
   - Column Heading changes the way the heading data is displayed, to either highlight or remove emphasis.
   - Column Total adds or takes away emphasis on the lowest row of your spreadsheet, which usually is used for summing figures.
   - Row Heading changes the way fonts and shading are presented in the left-most row, where most people place heading information that relates to entire rows of data.
   - The Row Total check box enables/disables SpeedFormat's formatting options for the row at the far right of the spreadsheet, often used for totaling rows.

### Saving Your Preferences

SpeedFormat lets you first name, then save your preferences as a unique preference "set." You might want to reuse the same set of formatting preferences for a spreadsheet that's regularly distributed to upper management recipients who appreciate fancy shading and font treatments—when colors can be printed. If readers of a printed spreadsheet appreciate formatting unique to them, you can save the format they prefer with a format name that will remind you of them.

To save your preferences, click on the Add button, then:

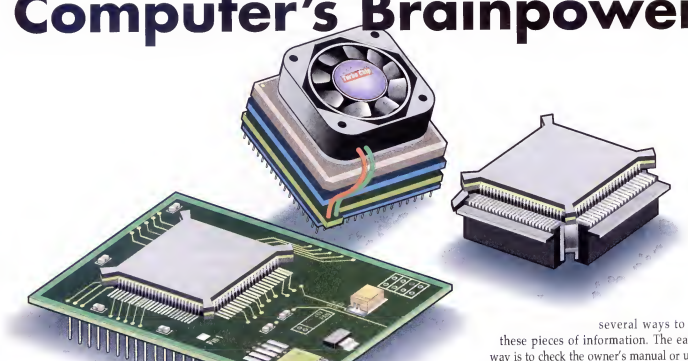
1. Type any 14-character name (including spaces) in the Format Name text box.
2. If you want to change the size of the area in your spreadsheet affected by these format preferences, type the coordinates into the Example Block text box, or click on the Point Mode button to select the cells you wish to format. If you have no reason to make a change, ignore the Example Block text box.
3. Click the OK button when you're done. Your new format will be saved with the unique name you gave it, and it will appear on the Formats list in SpeedFormat's dialog box with all of the example formats. Check out the photo on this page to see "My Favorite!" format highlighted on the Formats list.

Deleting a set of preferences is even easier. Just select the preferences you wish to delete, then click on the Delete button. ●

*by Robert Mullen*

***Note:*** *Previous Quick Studies referred to Quattro Pro 3.0, the version number some use to refer to the Quattro Pro version included in Novell's PerfectOffice 3.0. Future Quick Studies will refer to Quattro Pro 6.0, the current standalone and PerfectOffice version. Regardless of version numbers, the suite and standalone applications are the same.*

# Boosting Your Computer's Brainpower



Do you find yourself wishing that you could have a newer, faster computer, without paying for a whole new system? In most cases you can, by upgrading your **central processing unit (CPU)**, or **microprocessor**, which is the "brain" of your computer. The CPU is the part of the computer that interprets and carries out your instructions. By upgrading it, you can make your computer operate much more efficiently. (The actual amount of improvement will be limited somewhat by the type of computer you're upgrading. For example, older computers don't upgrade to Pentium performance.)

There are many different upgrades available, depending upon the type and speed of the computer you want to upgrade. The upgrades fall into three basic categories: chip-for-chip upgrades, "piggyback" upgrades, and daughtercard upgrades. Each of these upgrades is relatively easy to perform—you'll be able to do it yourself without any unusual or expensive tools. (You should only need a screwdriver—to remove the computer's case—and possibly a chip removal tool. If you need a chip removal tool, it will be included in the upgrade kit.)

*NOTE: Upgrade kits will include specific directions for the upgrade you're performing; the following instructions* ***don't*** *replace those more detailed directions. They simply explain each of the three major types of upgrades, and give a general overview of how they're performed. There will be some variation among different brands of upgrades and different computer systems.*

The first step in any CPU upgrade is to determine what type of upgrade kit you need. To do this, you'll need to determine what type of processor your computer is currently equipped with (for example, 386DX or 486SX) and its **clock speed** (this measurement is given in **megahertz**, or millions of cycles per second). The clock speed is one of the factors determining the overall processing speed, because the system clock generates the stream of timing pulses that synchronize all of the computer's operations.

If you don't know your computer's processor type and clock speed, there are several ways to find these pieces of information. The easiest way is to check the owner's manual or user's guide that came with your computer. Another option is to run Microsoft Diagnostics (MSD), which comes with Windows. To run this program, type **msd** at the command prompt and press ENTER. The program will display information about the various components of your computer, including the processor. A third method is to turn off the computer, unplug all of the cables from the back, open its case, locate the processor, and read the string of numbers on it. (This string will contain all the information that you need; for example, it might say "Intel 80386SX-25." This would mean that your computer has a 386SX processor chip from Intel, with a clock speed of 25MHz.) While this is the most difficult method, it's also the most reliable. Once you have this information, you can choose an upgrade from any of several companies, including (but not limited to) those mentioned in this article.

The next step is also the same for all upgrades: turn off and unplug the computer and any peripherals (printer, monitor, etc.), and disconnect all power cords and cables from the back of the computer. Most computers will have screws on the back of the case holding it

**The Lightning 486 from Kingston is a daughtercard upgrade. The Cyrix Cx486SRx2 (inset) is a piggyback upgrade.**

in place, though some computers may use hinges instead. Using a Philips screwdriver, remove the screws and set them aside, or unhook the hinges. Remove the computer's case and set it aside.

*NOTE: Before working on anything inside the computer, ground yourself by touching the computer's metal case to protect the computer from static electricity.*

Now you need to locate the processor. It will be a square chip installed on the motherboard (see Figure 1). The location of the chip on the motherboard will vary from computer to computer; in some cases, you may need to remove some hardware (such as adapter cards or drive bays) to get at the processor. If so, make a note of where each piece goes and how it is installed, so that when you're done with the upgrade, you can put everything back where it belongs. Once you've located the processor, you're ready to proceed.

## Chip-For-Chip Upgrades

In this type of upgrade, the old processor is removed, and the new processor is inserted in the empty socket. To illustrate this type of upgrade, we installed a TurboChip (Version TC486/75) from Kingston Technology Corp., in a 33MHz 486DX computer, adding **clock-tripling** technology. (This means that it will run three times faster than with the old processor.)

Once you've located the processor, note the location of Pin 1 on the CPU socket. It will be identified by a notch, beveled corner, dot, or half-circle on the current processor. You'll need to align Pin 1 on the socket with Pin 1 on the upgrade processor. Next, check to see whether the current processor is **socketed** (in either a standard or a **ZIF [zero insertion force]** socket) or if it's **surface-mounted** (soldered to the board). A socketed CPU's sides will be flush with the sides of the socket; it will look like the left diagram in Figure 1. A surface-mounted CPU will have fine wires radiating from it to the board, like the chip mounted on the daughtercard in the above photo.

If your computer's processor is surface-mounted, look for an OverDrive socket. (This would be an empty socket next to your current processor.) If there's no OverDrive socket, this type of upgrade won't work, and you'll need to find an alternate upgrade solution. A company that offers CPU upgrades should be able to help you determine what your options are. *You shouldn't attempt to remove a surface-mounted CPU, as you will cause permanent damage to the computer.*

If the chip is socketed, you'll remove it and insert the upgrade in its place. The method you'll use to remove the old processor will depend upon whether the CPU is in a standard socket or a ZIF socket (see Figure 1). If it's in a standard socket, you'll simply pry up the chip using the tool provided in the upgrade kit, loosening the processor chip one side at a time until you can remove it with your fingers. ***Be sure you are only removing the chip itself and not attempting to pry up the actual socket.*** If the chip is in a ZIF socket, there will be a side lever, overhead bar, or retaining screw holding it in place. Undo that restraining mechanism, and remove the CPU with your fingers.

Once you have removed the CPU (or located the OverDrive socket if the CPU is surface-mounted), you're ready to install the new processor. (Some types of ZIF sockets will require you to use a socket extender; this part and its directions are usually included in the upgrade kit.) Be sure that the locations of Pin 1 on both the socket and the processor are in the same position, and verify that the pins on the chip are aligned with the holes in the socket (see Figure 2). If the socket is a ZIF socket, make sure it's unlocked and in the open position. Press the upgrade processor into the socket with firm, even pressure. Once the chip is seated properly, if it's in a ZIF socket, close the socket to a locked position.

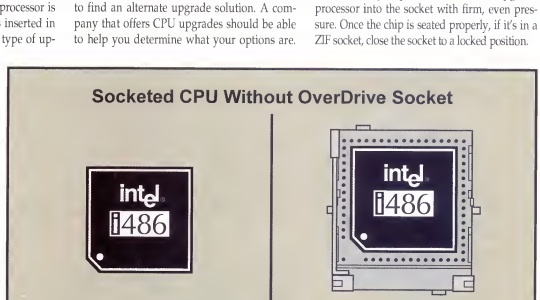



**Figure 1: A chip in a standard socket (left) sits flush with the socket. A ZIF socket (right) will have a locking mechanism to hold the chip in place.**

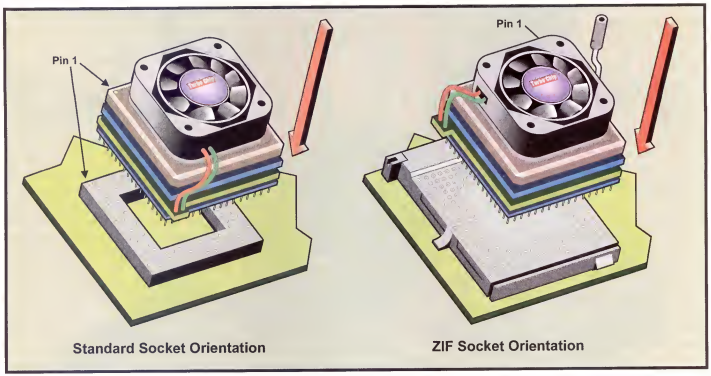



**Figure 2: To insert a chip into an empty socket, press down firmly until you hear it snap into place.**

Once you've done this, the physical installation is complete. Replace the computer's cover and the screws that hold it in place, reattach the power cords and peripherals, and start up the computer with your monitor turned on. If your computer powers up normally, you've successfully installed the upgrade.

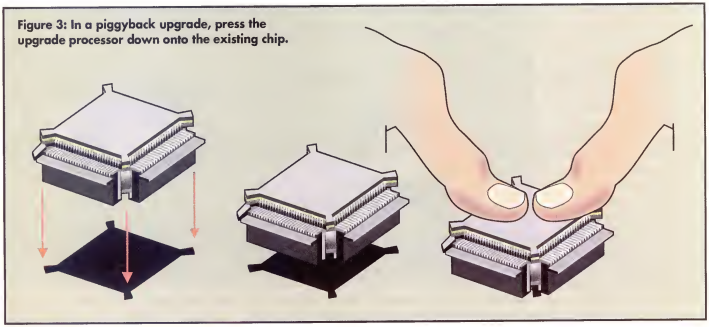
Many upgrades require a software installation after the hardware has been installed; the directions for the upgrade you're performing will tell you whether this is necessary in your case. If it is, the necessary software will be included in the upgrade kit, along with installation instructions.

## Piggyback Upgrades

This type of upgrade is performed by stacking the new processor on top of the old one. These upgrades are the easiest of the three types because you don't have to remove the old processor before performing the upgrade. Unless you run into trouble, it shouldn't take more than 15 minutes to perform one from start to finish. To demonstrate this type of upgrade, we installed a Cyrix Cx486SRx2 upgrade processor in a 25MHz 386SX computer.

Once you've located the microprocessor, align the upgrade processor over the old processor, with the logos facing the same direction (see Figure 3). It is extremely important

**Figure 3: In a piggyback upgrade, press the upgrade processor down onto the existing chip.**



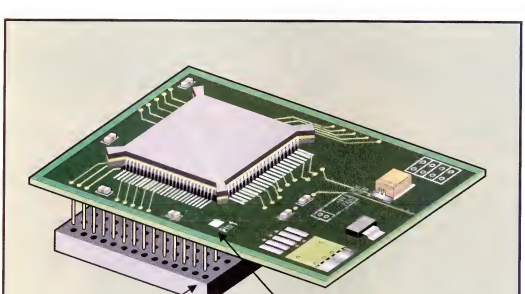



**Figure 4: A daughtercard upgrade is installed the same way a chip-for-chip upgrade is: press the board down firmly until it clicks.**

that the processors be correctly aligned, as installing the upgrade in the wrong position will cause permanent damage to both processors. Press the upgrade processor down onto the old processor until you hear it snap into place. At this point, plug the power cord back into the computer, reconnect it to the monitor, and turn them both on. If the computer powers up normally, you've correctly installed the upgrade. If there are no additional parts to install, replace the computer's case, and you're finished. If there are other parts to be installed, turn the computer off and unplug it again before continuing. The upgrade kit we used contained a plastic shroud to protect the processor; this would be installed at this point in the process, once you had determined that the upgrade was working properly. The kit we used also included a **heat sink**, which absorbs and dissipates heat to keep the processor from overheating. The heat sink is installed after the shroud is placed. Once you've added any such additional parts, you're ready to reassemble the computer and perform any necessary software installations.

## Daughtercard Upgrades

These upgrades are sometimes called **card replacements**. This type of upgrade is only slightly more difficult to perform than the chip upgrades; it should still take less than 30 minutes. To illustrate this type of upgrade, we installed a Lightning 486 from Kingston in a 386DX. This upgrade installs directly into the socket where the current processor is located.

After locating the processor, note the location of Pin 1 on the CPU socket. (As with the chip-for-chip upgrade, you'll need to align Pin 1 on the socket with Pin 1 on the upgrade processor.) Once you've noted the location of Pin 1, you're ready to remove the original chip. This is done exactly as it would be for a chip-for-chip upgrade. Make sure you are only attempting to pry up the chip itself, and not the socket.

Next, align the upgrade processor and the socket so that the locations of Pin 1 on each part match up. Sometimes, if other items on the motherboard will interfere with the proper seating of the daughtercard, an extra piece of equipment is necessary to make the card fit correctly. This is discussed in the upgrade manual, and the part will be available through the company that produced the upgrade you're using. Make sure that the pins on the processor line up with the holes on the socket, and gently press the processor into the socket (see Figure 4). This completes the upgrade; all that remains is to verify that the computer works correctly, and to install any necessary software according to the directions in your installation guide.

**Once you've completed the upgrade, your computer should show improvements in performance.**

These three types of upgrades cover CPU upgrades for many types of computers, from 286 systems to 486 systems, to Pentium performance. The upgrades to Pentium performance use an OverDrive processor and are either chip-for-chip upgrades or an insertion of the OverDrive processor upgrade into a special socket designed for this type of upgrade.

Once you've completed the upgrade, the fun part begins. Your computer should show improvements in speed and performance, giving you a new system to work with. ●

*by Diana K. McLean*

### For More Information:

*TurboChip*
$245 for 100MHz; $215 for 75MHz
*Lightning 486*
$295 for IBM compatibles; $325 for PS/2s
Kingston Technology Corp.
(800) 337-8410
(714) 435-2615

*Cx486SRx2*
$229 (list price)
Cyrix
(800) 462-9749
(214) 968-8387

# "Big Blue" Is Back

If you know anything about the history of personal computers, the company name you immediately associate with PCs is IBM. But, if you're like most people, when you shop for a PC in today's marketplace, you look at Compaq, Packard Bell, Toshiba, Gateway, and any other brand you can get your hands on. IBM basically created the personal computer revolution in the early 1980s and dominated the marketplace but, somewhere along the line, lost its market leadership position and was shuffled back into the PC pack.

IBM clones, usually called IBM-compatible computers, now split the majority of the market share. IBM has rededicated itself to regaining a solid market share, though, and "Big Blue" is making that move behind computing innovations.

Such innovations are most easily seen in the portable computer industry, where IBM has developed a number of design improvements to set its ThinkPad line apart in the sea of clones. The largely hyped, new Butterfly ThinkPad is one such innovation. But IBM is in the process of making large pushes in desktop computing, operating system software, and communications software as well. We'll discuss the upgrades IBM has made and give you an idea of where IBM is headed.

## New Attitude

IBM is a unique computing company because it has a hand in nearly all major aspects of the computing world—desktop computing (with the Aptiva), portable computing (ThinkPad), operating system software (PC DOS and OS/2 Warp), and, now, general productivity software. IBM recently completed a takeover of Lotus Development Corp., maker of *Lotus Notes* and *Lotus cc:Mail* among other highly successful software packages.

Even though IBM is involved in a wide variety of computing markets, IBM isn't considered the leader in any of them. In recent months, though, IBM has made a large push to establish itself as a major component in all of those markets, through major innovations and strong television advertising campaigns.

"There's definitely a strong focus on the PC market by IBM," says IBM spokesperson Jonathan Gandal. "IBM does intend to lead the PC marketplace, and it's focusing itself on that goal . . . . Clearly the focus now is to very closely correlate the two sides, and to make sure that we're offering the best total solution, a total hardware/software package."

## ThinkPad

The portable computing market is where IBM perhaps has made its biggest inroad.

"In 1992, in the first half of the year, if you were to look at a pie chart of the mobile marketplace, you wouldn't have seen IBM," Gandal says. "You would've seen IBM listed with whatever number of companies were in that little sliver called 'other.' IBM panned out to be about No. 12 in mobile market share. And since there were only so many companies making mobile computers back in 1992, you figure No. 12 was pretty far back in the pack. IBM had not focused itself on that market. When IBM started planning the ThinkPad line, which was introduced later that year, that was when IBM focused on the mobile market . . . . IBM, depending on what consultants you talk to, now will be listed as either No. 2 or No. 3 in (portable) PC shipments, and that's only in about (two or three) years from No. 12."

Gandal says IBM has accomplished its market surge through innovations in its ThinkPad line. Here are the major ones.

**Display screens.** The screens on the ThinkPad computers are among the clearest and largest available in the portable computing market. IBM has consistently maintained a 10.4-inch screen (measured diagonally) on its ThinkPads.

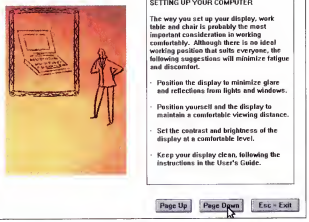
"You have seen in the last about six months other PC makers starting to integrate 10.4-inch displays," Gandal says. "That's an area that you will continue to see IBM innovating on in the future. We'll definitely continue to lead in that area . . . . The other thing

we did to screens, in addition to the size, was the introduction of anti-glare technology, which we call Black Matrix. That is something you may see more people in the market doing in the next year or so. It's great for when you're either outdoors or in some office setting with neon lighting where you tend to get a lot of glare on your screen."

**Pop-up keyboard.** The TrackWrite keyboard, which we'll discuss later, has gotten the most attention, but it wasn't IBM's first innovative keyboard design for portable computers. The pop-up keyboard, which is available on full-size ThinkPad notebook computers, lets you interchange various internal components.

The entire pop-up keyboard lifts up, revealing the ThinkPad's battery, hard drive, and diskette drive. You can remove the diskette drive and insert another module to handle a particular task, such as wireless communication, additional PC Card slots, or a television tuner. Each of the modules can be removed by hand easily.

"The idea there was to emulate a briefcase so that people who aren't proficient with computers wouldn't really have to worry about how you upgrade or how you add a capability to your machine," Gandal says. "You would simply do what you do when you leave your office: Unzip the briefcase, take out what you don't want, stick in what you want, and go."




**IBM's computers always feature strong online help features.**

**TrackPoint.** The TrackPoint pointing device, which is similar in looks to a pencil eraser, was introduced with the ThinkPad in 1992. The latest version, the TrackPoint III, offers QuickStop, which anticipates you stopping the pointer arrow on an icon or button, helping you use the pointing device more efficiently. A special, removable grip on the TrackPoint III makes the pointing device slip resistant.

The TrackPoint is located between the *G* and *H* keys in the middle of the keyboard, with the selection buttons located under the space bar. The TrackPoint's central location makes it usable for either left- or right-handed users.

When the TrackPoint was introduced, Gandal says, "there were a lot of other solutions that were basically clip-on trackballs that always had to go on one side of the machine or trackballs that were embedded

# The ThinkPad Spreads Its Wings

When you initially see the ThinkPad 701 model notebook computer from IBM, you have to wonder when IBM began hiring magicians as computer designers. How else can you explain squeezing a full-size keyboard into a subnotebook shell?

Once you actually type on the keyboard and realize you're not viewing an illusion, one word clearly describes your feelings about the 701.

"When we first showed that product, whether it was to customers or consultants, the people would just say, 'Wow!' and would ask if we could just keep opening it and shutting it, because no one could believe it," IBM spokesperson Jonathan Gandal says.

## Butterfly

The 701 has generated plenty of excitement in the portable computing world, grabbing the covers of many magazines devoted to portable computing. IBM has been hard pressed to keep pace with requests for evaluation units from various media. We cajoled, begged, and pleaded with IBM for three-plus months before finally receiving an evaluation unit for this story.

What's all of the fuss about? The puzzle-like keyboard called the TrackWrite.

The TrackWrite is actually a two-piece keyboard that fits within the dimensions of the 701's case when the computer is closed. But when you lift the 701's lid, the keyboard's pieces slide together and out, extending about one inch beyond the sides of the computer case. The keyboard automatically locks into place when the computer is open; it automatically splits and returns to its resting place when the computer is closed.

The TrackWrite is easy and comfortable to use. When extended, it actually is bigger with larger keys than keyboards on full-size notebooks we've used. It's an innovation that's been a long time coming in the subnotebook market.

## Solid Computer

The 701 is much more than a fancy keyboard, though. It is an impressive computer, featuring a desktop-quality screen as well as amazing sound capabilities. The impressive screen and audio are evident immediately when you turn on the computer through a multimedia introduction program. You won't believe the sound capabilities of the 701, which are the best we've ever seen on a portable computer without using external speakers. The screen is as large as it is clear, measuring a full 10.4 inches diagonally, which is as large as you'll find in a portable computer.

The 701 has dimensions of 9.7 x 7.9 x 1.7 inches and weighs 4.5 pounds, making it a solid portable option. You can get the 701 with either a 486DX2 or 486DX4 microprocessor, 4MB or 8MB of RAM, and 360MB to 720MB hard drives.

The software collection available on the ThinkPad is unmatched. You can choose or switch between Microsoft Windows and IBM's OS/2 Warp for operating systems. Various communications, productivity, fax, online service, and audio software packages are included with the 701.

only in one side of the machine itself." "None of those were solutions that people really were pleased with .... Of course, you do see a lot of pointing sticks out there now. Those are not all TrackPoints. Some of them are legitimate TrackPoint licensees; most of them are knockoffs. None of them are TrackPoint III."

**TrackWrite.** The TrackWrite keyboard is one of the hottest innovations to hit the portable computing industry. It's only available on the ThinkPad 701 model, nicknamed the Butterfly. (See "The ThinkPad Spreads Its Wings" for a review of the newest ThinkPad.) The two-piece keyboard automatically slides together to form a full-size keyboard in a subnotebook shell when you open the computer lid. While the TrackWrite seems like an obvious idea, it was one that eluded portable computing engineers for years.

"No one had been able to come up with anything better than making a 90% size keyboard and hoping that that was large enough," Gandal says. "(An IBM) designer was at home, watching his daughter playing with building blocks, and when she started moving the blocks around in different directions, a light went off. He ran into the office, and that morning he took a ThinkPad, he opened it up, he put the keyboard down on a Xerox machine, and he (copied) it. Then he took a scissors and cut the keyboard in different directions and angles. What he found was that, actually, you could take the keyboard, cut it in two horizontally, and put one side above the other. The depth was still the depth of a small notebook. You could fit it all in there, and if you developed the mechanism to slide it out, that was going to be the easy part."

## Innovations

IBM will continue to focus on making innovations in the PC market, Gandal says. Innovations carry two benefits. First, they make for an improved product. Secondly, they generate excitement and attention for a product, and the manufacturer's entire line of products receives a boost because of the single innovation.

"You really want to be differentiated in some way," Gandal says. "Most products and most brands out there are not differentiated. People shop and they look at the price points. What we're providing is another reason to take a close look at what you're buying."

IBM's successes in the mobile market aren't too surprising, Gandal says, because the mobile market is the most receptive to change and innovation.

"There's definitely a strong focus on the whole PC market by IBM," he says. "It just so happens that ThinkPad is probably the best example because, frankly, in mobile, a company with the resources and depth in the labs that IBM has is able to differentiate itself more. The mobile market lends itself more to innovation and design, (while in) the desktop market, that doesn't quite sell."

Whether such innovations will sway computer users into rekindling their IBM loyalty remains to be seen. One thing is for certain, though: The words "IBM" and "personal computing" are once again approaching the symmetry they enjoyed in the early 1980s. ●

*by Kyle Schurman*

**The ThinkPad 701's two-piece, TrackWrite keyboard slides together to become a full-size keyboard when you open the computer's lid.**

The 701 contains a built-in infrared connection, an integrated 14,400bps fax/modem (containing answering machine and speaker phone functions), and two PC Card Type II slots. Depending on your computing power needs, the ThinkPad's battery life is two to seven hours.

A high price is about the only drawback to the 701, and even that has undergone a large reduction since the 701 was introduced in March. Depending on features, the 701 now ranges in cost from $3,199 to $4,499, down about 20% from initial prices. With all of the features you'll receive, the ThinkPad's price is on the low end when compared to other high-end portable computers.

## Taking Off

After reviewing the ThinkPad, we're convinced IBM has created an innovation with the TrackWrite keyboard that may forever change the portable computing market. The two biggest complaints about subnotebook-size computers are keyboards and screens that are too small for comfort, and the 701 eliminates both.

"The challenge was there," Gandal says. "If you look at the subnotebook market, in which all of the consultants were predicting great growth, you can see from the slow growth that a problem had occurred. While end-users loved the (subnotebook's) size and weight, they didn't want to give up the comfort of a full-size notebook. There was a definite question of how to overcome what seemed to be an impossible challenge: How do you fit in capabilities that physically must be larger than the package itself? . . . This was one where it was a physical design statement that no one had been able to visualize, therefore, no one was able to predict when it could ever happen, and that's what really made it very exciting."

IBM has silenced such complaints with the ThinkPad. It is exactly what a portable computer should be—light, small, and as usable as a desktop computer. ●

PLUGGED IN

# Living In A Global Village

## Is Society Ready?

One of mankind's most common and driving goals has been the ever faster movement of information. And with each new invention, society has undergone dramatic changes.

The printing press made the written word accessible to the masses. The telegraph and telephone allowed people thousands of miles apart to discuss ideas instantaneously. Radio and television brought new experiences and ideas into our living rooms. Satellite technology made live telecasts from the most remote places on earth possible.

Each of these inventions made the world a less-isolated place—approaching a "global village," if you will. What new advance in technology is going to change the way we work and play? It's actually in its early stages right now, and if you have a computer with a modem, you've probably already experienced it—computer communications.

Few, if any, inventions have altered society as quickly as the personal computer. Computers and computer communications have found their way into every corner of society; we'll show you some areas in which you probably wouldn't expect to find computers making an impact and discuss the effect of computer communications. Is society ready to deal with the changes it has set into motion?

### Instant Communications

**Computer communications** involve any type of interaction done through computers connected via a network or **modem**. (A modem, or *mo*dulator/*dem*odulator, lets two modem-equipped computers exchange information.) Popular types of computer communication include electronic mail (E-mail), real-time discussion (chat), bulletin board postings, fax messages, and voice mail. Much computer communication is done through the Internet or an online service. Other communication occurs through a single network, usually within a company.

Why are computer communications becoming an indispensable part of business? Because they're virtually instantaneous and convenient. Rather than tracking down an elusive colleague by telephone and playing "phone tag," you can send her E-mail or leave voice mail, and she can respond at her convenience. If you have a document your colleague must approve, you can attach a copy of the document to the E-mail message.

The Internet and online services let you download information or do research anywhere in the world. With the right kind of job, you can use computer communications to connect to your company's network and **telecommute**, or work from home, just as if you were at the office. Or, perhaps, your children are using the Internet to discover new methods of learning at school.

The possibilities for computer communications are endless, and more unexpected areas are moving online daily.

### Religion

You've heard about the nastiness of the 'Net, with its pornography and uncontrolled rhetoric. But did you know you'll find religion online?

"For all you hear about the raunchy stuff on the Internet—I don't really know one way or another about that—but there are some great religious contacts for people on the Internet," says Rev. Paul Keenan, an assistant director of communications for the New York Archdiocese. "People are mystified and fascinated that I'm on the Internet and that the church is there . . . . The Internet is a very positive way for people to reach each other, and it's a very good way for us to get the message of God's love out to a large number of people."

Keenan began hosting weekly chat sessions through the Prodigy online service in February, adding the duty to his weekly radio show in New York. He teamed with Byron Shafer, a Presbyterian minister, to broadcast an Easter Sunday church service on Prodigy, the first such church service in cyberspace.

The chat sessions were Keenan's first experience with online services. He quickly has grown fond of the medium because it gives him a chance to connect with people who may not attend church or who don't want to discuss their individual problems face-to-face with a member of the clergy. He has counseled a runaway teenager and a cancer patient online, among others. Some might think the Internet and online services don't seem personal enough for such counseling, but Keenan disagrees.

"You just get such a sense of people's spirit," Keenan says. "Because you can't see them or hear them, it's almost as though you automatically go directly to what's invisible. That to me has been the most amazing thing about the Internet. You get to know people in a very different way."

## Virtual Communities

Going online gives people a chance to *feel* different, too, whether they assume a new persona online, drop a few of their inhibitions, or simply get a chance to escape from real-world problems. Fujitsu and CompuServe are teaming up to make that escape complete.

By the time you read this, CompuServe members will be participating in "WorldsAway," a virtual community created by the online service. WorldsAway members will run the virtual community, creating an economy, controlling the types of goods and services available, and setting the political structure.

"It is a community in the sense of any community, a collection of people with common interests or goals," says Larry Shelley, CompuServe's product manager. "More than that, WorldsAway is a real-world experiment in socialization, politics, and all aspects of building a community and the relationships therein."

Shelley says that the creation of virtual communities is the logical next step for online services, expanding on the idea of chat rooms, which are extremely popular.

"Most computer-based entertainments are defined by the designers, with limitations, walls, and capabilities limited to their plan for their world," Shelley says. "It is our hope to create a completely open-ended environment in which the participants will define their own worlds."

## Job Searching In Cyberspace

Still don't believe computer communications are seeping into every aspect of society? How about one of the most basic needs in today's society—finding a job. No more circling prospects in classified ads; no more leafing through a pile of printed résumés. Employers and future employees are finding each other on the Internet.

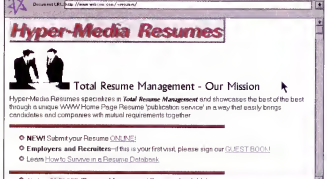
Pamela Nagel of Macedon, N.Y., is helping people find new jobs through the 'Net with her World Wide Web site, Hyper-Media Resumes, which is at http://www.webcom.com/~resumes. Nagel's site specializes in résumé publication and management.

Many Web sites on the Internet are dedicated to career topics, Nagel says. Some sites feature job openings, some feature résumés, and others perform both functions. One of the most well-known sites is the Online Career Center. Two popular Internet newsgroups containing job openings and résumés are misc.jobs.offered and misc.jobs.resumes.

If you want to place your résumé on the Internet, you can do it yourself through direct Internet access. You can go through one of the professional career sites, such as Nagel's, as well. Any cost for such a posting depends on the method you choose. Putting a resumé on the Internet has become a relatively easy process, Nagel says, but simply putting it in cyberspace doesn't guarantee success.

"I have found that good résumé writing is very difficult for most people," Nagel says. "By concentrating (my) efforts on knowing what does and doesn't work online, my business evolved into a resource for those early pioneers who wanted to take their career search to the Internet, but did not know how or did not have access. With all of the easy access to the Internet currently being made available, posting a résumé to the Internet can now be a very simple process; however , publishing a résumé that is effective and stands a higher chance of being viewed by employers is something else again."


**WorldsAway on CompuServe creates a virtual community on the online service.**




**Your next job may be waiting in cyberspace. Numerous Internet sites deal with careers.**

## Business Expansion

The idea of a global village conjures up images of an ever-growing worldwide society with shrinking boundary lines. The global village allows people from various parts of the world to communicate as if they were neighbors. Distance is no boundary when using computer communication.

Insightful businesses can envision the cash registers—or, rather, the credit card charges—ringing. Marketing a business or selling a product without the restriction of location is a business owner's dream. The Internet is providing that opportunity.

Kevin Van Horn, a certified factoring specialist, markets his business, called The Capital Source, on the Internet. He is able to find clients and educate people about factoring online. Van Horn helps businesses find funding sources when they've exhausted traditional financing means.

When Van Horn started his business, his only means for finding clients was knocking on a lot of doors.

"If I was accepted in, I would then have to educate the client on

the benefits of factoring in the few minutes I had, discussing the world of finance and how factoring fits into their situation, along with their traditional funding services such as banks," he says. "I came up empty handed."

Van Horn then placed his business card on Prodigy in a business bulletin board. Within two weeks, he had his first client. He since has expanded his online presence to the Internet.

"The Internet is a low-cost way of advertising and bringing people to me through an education forum designed (online)," Van Horn says. "I have access to large numbers of potential clients who are already surfing the 'Net and looking for specific services not available to them locally."

### The Global Village

Why aren't all businesses flocking to the Internet? Besides the potential cost, it's basically for the same reason some businesses still resist the personal computer, says Van Horn, who recently started assisting other businesses in putting together Internet advertising.

"Whenever anything new comes to market, there will be those who jump on the wagon and develop that into something they can use," Van Horn says. "The average person or company will hold back until technology has worked out the bugs and perhaps the price is lower. Then there are the seven words of the stagnant business, 'We've always done it this way before,' which keeps many out of the cutting edge of technology."

Deciding whether to join the global village would be easier if we could predict the future. Unfortunately, crystal balls used to view the subject aren't too clear.

"Right now, I would argue it's a very broad horizon," says William DiFazio, chairman of the department of sociology and anthropology at St. John's University in Jamaica, N.Y. "We're really just kind of at the beginning. It's not completely clear to anyone what's happening because the changes are so enormous . . . . I know that what I think it'll look like 10 years from now will be wrong. I assume that I'm wrong about it . . . because it will probably be more than I can imagine. I think the possibilities are endless."

Already the possibilities are amazing and frightening at the same time. As computer communications continue to expand, society and business undoubtedly will be forced to adapt or be left in the wake of the information tidal wave.

Permanent migration to a global village has numerous potential consequences: Elimination of jobs, a larger class split between technological haves and have-nots, and a society unwilling to deal with the problems. Living in a global village has even more potential benefits, though: Worldwide communication, telecommuting, business expansion, and a greater quality of life.

Migrating to a global village means that sealing a business deal in New York occurs on your computer screen, traveling to Europe occurs through a telephone line, and communicating with Japan occurs through your keyboard and fingertips. Never has the world been so small . . . or so accessible. ●

*by Kyle Schurman*

# Global Village Side Effects

For every miracle drug invented, a few side effects come along for the ride. And for each monumental advance in technology—in addition to the benefits—society encounters new problems to which it must adapt.

Unfortunately, computer communications follow the rule. We'll show you some of the consequences of living in a global village. Do the benefits of computers and computer communications outweigh the problems? Sociologists we talked with think they do . . . as long as society resolves to meet the consequences head on rather than turning a blind eye.

### Societal Changes

Personal computers are causing a large upheaval in society; computer communications will quicken the process.

St. John's University's William DiFazio and Stanley Aronowitz, professor of sociology at the City University of New York, recently co-authored "The Jobless Future," which was an in-depth study of computerization's effect on professionals in the areas of education, architectural design, and molecular biology, which are professions expected to benefit greatly from computers. While the professions in the study saw great benefits from computers, they also saw some problems, such as steady job reduction.

"The way the technology is implemented, as it's controlled by large corporations and large financial organizations, the thrust of the computer development has been toward reducing jobs in the workforce," DiFazio says.

### Global Village

Computer communication improvements virtually have turned the world into a single society, giving businesses the opportunity to expand worldwide. But that expansion won't automatically create a similar expansion in jobs.

"A corporation doesn't have to have as many facilities on a global scale as it used to have," Aronowitz says. "The whole administrative operation can be concentrated in one place, except for sales and some warehousing. An average industrial or commercial corporation, through communication technology, can basically do all of its work with relatively few people. You don't need a whole European infrastructure to take care of the administrative, the accounting, the bills, and all that stuff for Western Europe. You can do that in one place, and that place could be in North Dakota or it could be in Bangkok . . . ."

What does this mean for society? Aronowitz expects half of the world's three billion person workforce will be unemployed within 25 years. While that sounds like a dire consequence of computing technology, it's something society can handle by taking the proper steps, DiFazio says. It may prove to be a major benefit to the quality of life.

"Concerns about technology have to be decided more democratically," DiFazio says. "We have to begin to think about what life is like if work increasingly becomes secondary. I think we have to think about creating a world where income becomes, at a basic middle-class level, guaranteed for all people . . . . We'd have work-sharing. We'd have no overtime. Community politics would become a major value. Cultural activities would become a major value as well.

"If we start having a world where people are working 20- to 30-hour weeks, then people have another 20 hours to do other things, which include community politics (and) spending time with their children," DiFazio says. "Aronowitz and I believe people have a right to have time to themselves and have pleasure." ●

**"I subscribed to your magazine two months ago, and let me tell you, you are a godsend. I have only been a computer user for a year and am basically self-taught.**

**"When I was first introduced to computers, I had to learn in order to be more effective with my job. The only program that I was taught to use was Lotus 1-2-3. The only way I knew how to get into the program was from the command prompt. Even with that, I had to write down the commands to start the program. To be honest, I was so scared that I would lose all of the information that I would freeze before I started the program and had to do breathing exercises to calm down. In addition to my fear, the person who was teaching me the basics would pull 'harmless, little stunts,' like moving my cursor to the end of the sheet to make it look like I had lost my work and put my work under another file name. He knew that I knew nothing about DOS or even how to boot up the computer manually.**

**"Now, I am proud to say that I can spin him in circles with Lotus and fix what he messes up. I was determined to learn everything that I could, so I bought a clone IBM 486 and had Windows, Lotus, and WordPerfect loaded onto my machine.**

**"Your magazine has helped me to learn even more and helped me to fix things that I was reluctant to try. I still work for the same company that made me learn the computer, but now I do the troubleshooting for all of the office personnel. My specialty is Windows. Since we are operating on a network system now, I need information about using and troubleshooting this system. Needless to say, I found another obstacle to challenge, and I hope that I will be able to write to you next year telling you that I can troubleshoot this also.**

**"Again, thank you ever so much for an excellent magazine. Keep up the good work . . ."**

***—Debra,***
***Westminster, MD***

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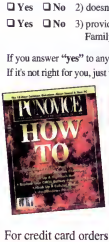



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**"It has been a pleasure to share this issue with friends who are eager to subscribe. I am looking forward to my next issue and commend you on publishing a quality magazine. Keep up the good work."**

***— Dennis, New London, Connecticut***

# Homework People Love: Telecommuting

Imagine an end to rush-hour traffic. (No, the city isn't building a freeway from your house to your office for your personal use.) Imagine spending more time with your family. (Yes, you're going to remain employed.) And imagine not having to drink office breakroom coffee ever again. (Now we're talking.)

Sounds too good to be true? Sounds like a fantasy, futuristic work world? Sounds like we've been drinking a little too much of that breakroom coffee ourselves? Everything described above is occurring in many companies across the United States, and a few of your coworkers already may be taking advantage of it.

Telecommuting gives you the opportunity to work at your job from your home. Some telecommuters spend their entire 40-hour work week at home; others spend one or two days a week out of the office. Either way, telecommuters are breaking new ground. While the idea still seems strange to many people, eventually telecommuting will become as common as the business suit.

"Subsequent generations won't think anything of it," says AT&T spokesman Burke Stinson. "It'll seem very strange to see people parading off to work dressed up in their suits."


## Telecommuting's Growth

Telecommuting is a fast-growing option for companies and workers. Link Resources, a New York market research firm, estimates about nine million Americans telecommute.

Why is telecommuting booming? While there always has been a desire to avoid the time-wasting physical commute to work and to spend more time with family, workable technology just wasn't available—until now.

"People can work anywhere now," says Lisa Kanarek, who is an organizing expert and the author of "Organizing Your Home Office For Success." "They can work in a home office or in the mountains. . . . (People) don't need to commute—they can communicate by fax, by E-mail. It's so easy to communicate that they don't have to be face to face anymore."

"We're really trying to encourage (telecommuting) because the technology has advanced to the point where you really can do it effectively," says Emily Bassman, Pacific Bell's director of virtual office development, who telecommutes the majority of the time. "It increases productivity, it enables people to spend more time with their customers and clients, and we think those are good things."

Pacific Bell started its telecommuting program in 1984 because Los Angeles city officials requested that businesses find ways to reduce commuter traffic for the Olympic Games. Since then, telecommuting has grown in popularity, especially following the recent earthquakes in San Francisco and Los Angeles that brought normal life and travel to a standstill for weeks. Between 13% and 15% of Pacific Bell's employees now telecommute at least part of the time.

"We, as well as a number of other businesses, asked employees (in 1984) to either work from home or from another location," Bassman says. "It worked so well that we started playing around with it a little more even after the need was gone. It just grew from there. It was so popular and employees liked it so much that once it got started, you couldn't stop it."

AT&T has found a similar receptiveness from its employees. Even though the communications giant was "embarrassingly late" in joining the telecommuting movement, Stinson says the employees have quickly accepted the idea. About 40% of AT&T's managers telecommute at least part of the time, which is one of the highest percentages in American business. AT&T's telecommuting population has doubled in the past two years. Consequently, AT&T last year saw an $80 million savings in real estate costs because of a diminishing need for office space.

Will telecommuting work for you? It's definitely not for everyone.

"I have run into a few people who just do not have the discipline to work at home," says Kanarek, who runs a home-based business in Dallas called Everything's Organized that helps people organize their home offices and improve their productivity. "The refrigerator is there, and they're watching 'Oprah.' It's just too much. They have to get dressed; they have to get in their car; and they have to (go to the office)."

Before deciding whether to try telecommuting, you need to weigh the advantages and disadvantages. While everyone's situation is different, some of your personal pros and cons undoubtedly will appear in the following lists.

## Telecommuting Pros

**Comfort.** You can set up your home office however you want with the equipment you want, rather than conforming to a preset office configuration. You also can dress how you want at home. "When I'm on the phone with customers, they assume I'm at the corporate office wearing a suit, when in reality I'm probably at home in my sweats," says Rick Mayo, an engineer from Denver who has telecommuted for five years.


# A Telecommuter's Typical Day

Before we attempt to describe a telecommuter's typical day, we have to say telecommuting and typical day represent an oxymoron, kind of like "jumbo shrimp." No blueprint exists for telecommuting; everyone's job requirements are different.

"Someone might need to do something during the day, so they regularly break up their day and spend a couple of hours working in the evening," says Pacific Bell's Emily Bassman, who has telecommuted regularly for more than 18 months. "Depending on your job and the communication needs you have in your job, that might work. With other people, it just won't. You have to be available between 8 and 5."

## Working Day

By working at home, you avoid the commute to the office, and you don't need to spend time dressing for work. Depending on your habits, you could save one to three hours in the morning. Many people split the time they save—the company gets half and the telecommuter gets half for running errands, exercising, or sleeping.

Bassman says starting and ending each day with a particular routine, such as a walk or a good cup of coffee, will help you separate home and work life, which can be difficult for telecommuters. Getting out of the house for lunch is helpful, too.

It's especially important for telecommuters to continually monitor their E-mail and voice mail messages, Bassman says. You'd hate to spend all day finishing a project, only to find out when you check your messages at 5 o'clock that the project was canceled at 10 a.m.

Rick Mayo, a Denver-based engineer, says he sometimes takes care of chores around the house while thinking about a project. Sometimes he'll work at night using his portable computer.

"All in all, a telecommuter's day lasts over eight hours, but (he is) doing personal stuff part of the time, so it evens out," Mayo says. ●

## Telecommuting Cons

**Child care.** Telecommuting and caring for children at home don't mix. "It's not a substitute for a baby-sitter," Kanarek says. "If you're going to work at home, you need to have arrangements so you can get your work done."

**Productivity increases.** Stinson says people who work at home—especially those who telecommute two or three days per week—often spend more time discussing their work schedules with their managers than their in-office co-workers, which helps them be more productive. At-home workers usually have fewer interruptions and less stress, too. "The tendency is to be more productive at home," Stinson says.

**Time-savings.** This probably is the biggest telecommuting advantage in a society where no one ever seems to have enough time. Telecommuters can spend more time with family and can avoid the tedious rush-hour drive. "Now, when I (drive) into work, I just can't imagine that I used to do it every day," Bassman says. "It's such a time-waster."

**Communicating with peers.** Communication via telephone and E-mail will get the point across, but other forms of communication—such as voice inflection, body language, and facial expressionss—are missing. For example, a

;)

emoticon in an E-mail message can't quite convey the same message as a wry smile in person. "Many people say four-fifths of what you communicate isn't necessarily tied to words," Stinson says.

**Family concerns.** "It's hard for the family to understand when I can't be disturbed because I'm concentrating on a project or on a business call," Mayo says.

**Leary companies.** Some workers who want to telecommute aren't offered the option by their companies. "Ninety-nine percent of American management thinks a tight reign on people is good management," Stinson says. "If there's one thing that flies in the face of tight management, it's letting them work at home."

**Loneliness.** If your favorite work times are spending time with co-workers and interacting with others on projects, telecommuting probably isn't for you. Telecommuters need to make sure they get out into the public regularly and visit co-workers, Kanarek says, "otherwise, the UPS man becomes their best friend."

Whatever the disadvantages, telecommuting's increasing prominence in the work world proves that there are plenty of people who do find its flexibility and increased productivity appealing. Or maybe they're just trying to escape that awful breakroom coffee. ●

*by Kyle Schurman*

# Telecommuting Tips

✔ **Have a private place to work.** Make this home office as comfortable as possible, and avoid placing distractions in the room, such as a TV.

✔ **Remember, you *are* at home.** Interruptions are virtually unavoidable whether you're at home or at the office. If family interruptions are too much to take (be prepared, they will occur), try shutting the office door, scheduling family activities after working hours, or planning your heaviest working time when family members are out of the house.

✔ **Don't feel guilty.** Your spouse may expect you to fit in housework and errands during the workday; co-workers may accuse you of goofing off. Don't feel pressured to impress everyone; your work or home life will suffer.

✔ **Don't skimp on equipment.** Telecommuters are more productive at home than at the office, but poor, slow equipment will eat up your saved time. Get the fastest computer equipment you can afford.

✔ **Keep in touch.** You need to know what's happening around the office, and you need to take the initiative. It's easy for the boss to talk with in-house co-workers; it requires effort to talk with you.

✔ **Be disciplined.** Telecommuting requires self discipline to complete the assigned work, and that means ignoring the beckoning of the TV, refrigerator, and golf course. ●

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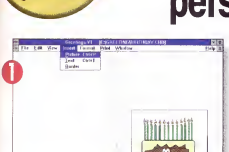


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# Business As Usual

## E-mail Puts A New Twist On Old Debates

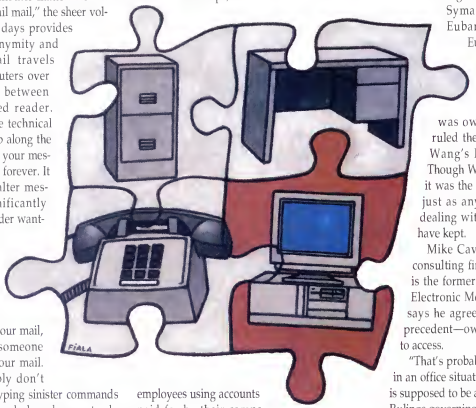
Putting a letter in an envelope and dropping it in the mailbox is a virtual guarantee of privacy. Jokes about the U.S. Postal Service aside, people every day expect even the most sensitive messages to reach their recipients without being read by postal workers, your boss, or your company's rivals.

Electronic mail is another matter. As with the more familiar "snail mail," the sheer volume of E-mail these days provides some degree of anonymity and security. But E-mail travels through many computers over the winding path between sender and intended reader. Someone with a little technical know-how at any step along the way could easily read your message or throw it away forever. It is even possible to alter messages en route, significantly twisting what the sender wanted to say.

For the vast majority of computer users, this scenario is highly unlikely. In order for someone to read your mail, there first must be someone who wants to read your mail. Most people probably don't have cyber-enemies typing sinister commands on a keyboard in some darkened room, tracking down their victims' messages with ruthless abandon.

Congress has passed laws to protect us from this sort of wiretapping as well. Under the Federal Communications Privacy Act of 1986, E-mail enjoys most of the same protections granted to letters and telephone conversations. Government entities, such as the FBI or local police, must obtain a search warrant to eavesdrop on electronic communications. Companies such as CompuServe, which transfers and stores its users' E-mail, and AT&T, which might carry E-mail over its communications network, also are prevented by law from peeking at customer messages.

But, as with any legal question, the rules get a little foggy in a few cases. Private citizens sending E-mail from their own computers certainly have legal protections from would-be snoops, but




employees using accounts paid for by their companies may want to watch what they type. Some workers might be surprised to realize that just because you write a piece of E-mail doesn't mean it belongs to you.

### Borland & Wang

One of the most famous cases dealing with the question of employee E-mail involves software giant Borland International. On Sept. 1, 1993, Eugene Wang, a former Borland vice president, defected to the competition at Symantec Corp. Because he had been in a position to have access to many company secrets Symantec might find valuable, workers at Borland suspected Wang took more with him than just his talents. Borland officials couldn't, however, prove their suppositions until they opened Wang's company-provided MCI Mail account and dug through his recent E-mail. The investigation led to searches at Symantec president Gordon Eubanks' home and office. Eubanks was later a defendant in Borland's suit against Wang and Symantec.

Because the account was owned by Borland, courts ruled the evidence gathered from Wang's E-mail was admissible. Though Wang had written the mail, it was the property of the company, just as any paper memos or files dealing with Borland that he might have kept.

Mike Cavanagh, president of the consulting firm Cavanagh Associates, is the former executive director of the Electronic Messaging Association. He says he agrees with the Borland case precedent—ownership means the right to access.

"That's probably what you would want in an office situation," he says, where work is supposed to be a collaboration.

Rulings governing the privacy of E-mail in a company environment are no different from any other workplace privacy law, he says. In the same way the company can have access to your desk drawers and memos, he says, they can pull up your E-mail.

Cavanagh says an example of the necessity of such rules might be a team of employees that has worked for six months on an important contract. If the leader of the team calls in sick on the morning of the presentation, you would want other employees to be able to go in his office and get the necessary materials.

Snoopy bosses could take advantage of the situation, Cavanagh says, but that was also the case before anyone ever heard of E-mail. Some privacy advocates make the claim that the use of E-mail makes it somehow easier for administrators to keep close tabs on workers, Cavanagh says, but that isn't true.

"You don't have to have much technical sophistication to go in and rifle through an office," he says. "Clearly, anyone with a second-grade education can discern whatever is in a desk drawer."

Establishing a different set of privacy rules for E-mail just because it is the latest form of communication doesn't make sense, Cavanagh says, adding that such a distinction would hurt workers more than help them.

Evan Hendricks, editor and publisher of the Washington newsletter *Privacy Times*, says he thinks stronger privacy laws would help workers. The few court rulings on E-mail, he says, give employers too much power and employees too few guarantees of privacy. The way things stand, Hendricks says, workers at some companies know they can't always be candid with E-mail.

"That's an impediment to open communication," he says, which leads to less efficiency. "It counters the purpose of E-mail, which is to improve communication."

Hendricks says he doesn't doubt there are some instances where it might be necessary for companies to look at E-mail, such as if an employer suspects someone of embezzlement or other wrongdoing.

"But making it open season is another matter," he says.

Employers should be able to prove just cause in order to look over employee communications, Hendricks says. An E-mail system must have a measure of privacy to encourage people to use it; otherwise, it is worthless.

## The Best Policy

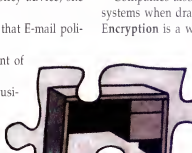
Many companies have come to the same conclusion, although they would favor corporate policies over government legislation. Most lawyers and computer users agree that the best solution for a company concerned about secrets escaping through E-mail systems is to establish a clear, stated policy. Once a policy is created, the company should stick to it. If employees know where they stand regarding the privacy of their E-mail systems and what the proper use of them should be, disputes or costly litigation can be avoided.

**Establishing a different set of privacy rules for E-mail just because it is the latest form of communication doesn't make sense.**

Alison Graham, communications manager for the Electronic Messaging Association, says her organization offers advice to administrators trying to establish policies covering their employees' use of company E-mail systems. The first piece of E-mail policy advice, she says, is that you need one.

Cavanagh says he agrees that E-mail policies are important.

"It's good for any element of the workplace," he says.



E-mail rules in place at businesses today run the gamut from the hard-line "we can read anything" to the permissive "all E-mail is private." For many companies, the best solution probably lies somewhere in between. The hard-line approach restricts the free flow of ideas as employees worry about Big Brother. They might censor themselves or stop using E-mail altogether. On the other hand, an open policy doesn't protect companies from what amounts to, in the electronic age, an unguarded back door.

Hendricks says the most successful policies are explicit. Administrators should assure employees that E-mail is private except under certain extraordinary cases. The policy then should spell out those instances where the company would override the confidentiality of E-mail. Policies also should be flexible enough to allow for such times as when a valuable staffer is laid up in the hospital while crucial E-mail sits in his or her computer. Efforts should be made to get permission from employees to read their E-mail in all but the most extreme circumstances.

Employers formulating policies also may want to address the subject of personal E-mail. Graham says most of the policies she has seen do not eliminate the personal use of E-mail systems, but most discourage such things as the spreading of political beliefs or discussions of happy hour at the bar around the corner.

"It really depends on the company, (and) the type of environment," she says.

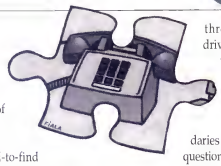
Cavanagh says personal E-mail probably shouldn't be encouraged, but outlawing all personal use would make for a rather draconian company policy. On occasion, he says, E-mail may be the best way to communicate. Just as most employers allow the personal use of the telephone at times, workers shouldn't have to refrain from ever sending personal E-mail.

## Code Considerations

Companies also might look at encryption systems when drawing up an E-mail policy. **Encryption** is a way of encoding electronic communications so that only the intended recipient can understand it (see sidebar). Many popular office E-mail systems can encrypt messages to help keep sensitive documents secret. A company, however, would not want to let their employees encrypt messages beyond the company's ability to decode them because valuable

information could be locked up as gibberish if an employee was terminated or unavailable.

Of course, these types of problems aren't new. Businesses have been dealing with lost or hard-to-find documents since the invention of paper. Employers in a bind may find it easier to search through a worker's hard drive than the typical—and very unalphabetical—file cabinet. The rise of electronic communications puts a twist on some old quandaries more than it raises new questions.



Employees have a legitimate right to privacy, but the fact is the workplace has never been all that private. Files can be opened, telephones can be monitored to ensure courteousness, computers can be switched on and files called up. The lack of privacy guarantees for company-provided E-mail accounts is simply business as usual. ●

*by Alan Phelps*

# Electronic Decoder Rings

Though most E-mail users probably don't have to worry about spies, keeping sensitive messages private can be important at times. Maybe it's industrial secrets or correspondence with your investment broker. Perhaps you want to transmit the ingredients of Coca-Cola or the herbs and spices that go into making Kentucky Fried Chicken.

For paper documents, envelopes or even private couriers might be the answer. In the electronic world, neither of these exist. You usually cannot control how your message gets from computer A to computer B. At each step along the way, someone with the desire and know-how could tap in and read your note.

The solution is encryption. Encrypting outgoing messages ensures that the only person who reads them will be the intended recipient—provided he or she is using the same kind of decoder ring you have. Otherwise, the file is an unreadable scramble.

Some network mail software, such as *Lotus Notes*, provides its own encryption. But these only work for messages sent between the same types of systems. On the open Internet, with its vast range of mail readers, there is no single system. But one method of encryption, called **Pretty Good Privacy** (**PGP**), is fast becoming the de facto standard since its introduction in 1991.

PGP and similar systems go a step beyond normal encoding. Most people are familiar with simple coding systems where both the sender and the recipient hold a "key" that can decode messages. The problem with such systems is how to share the key without letting it fall into the wrong hands. If you are worried about someone stealing your secrets, how do you know your most important secret—the key—is safe? Unless you meet each of your recipients in person and hand them the key yourself, you can't know for certain who else might possess it.

PGP, on the other hand, is based on what is called the **public key system**. Each user has two electronic "keys," which are strings of characters used by the PGP program to encode and decode messages. One key is kept private—stored on an individual's computer or on a floppy diskette and is known only to that person. The private key is never given to anyone. The other key is public, meaning it is sent to potential recipients or stored in a publicly accessible place. It does not matter who has the public key.

The PGP encryption itself is like a safe with a special lock that turns both to the left and right, with the unlocked position in the center. If you wanted to send a secure message to Bob, you would encode it with Bob's public key, turning the safe lock to the right. Other users along the line who have Bob's public key would be frustrated if they tried to open the lock because their key would only turn to the right as well. The only key that can turn the lock back to the left—thus unlocking it—is Bob's private key.

In such a system, users store a set of public keys for everyone with whom they want to exchange secure messages. They lock each message with the public key of each intended recipient, secure in the knowledge that only the correct person will read it.

Cryption experts agree that systems such as PGP provide more than what most people would call "pretty good" privacy. It probably would require years for even a determined spy to break the code and read an encrypted message.

This sort of cheap and powerful encryption has some government and law enforcement officials nervous. Authorities today are able to read suspected criminals' paper mail or tap into phone lines provided they have a court order. Encrypted E-mail, however, would be nearly impossible to crack. Some in Washington favor various methods of controlling encryption, such as the so-called "Clipper chip" plan that would, in essence, give law enforcement agencies a spare key to open anyone's electronic communications if they have a court's permission.

Civil rights and privacy advocates bitterly oppose these schemes. Others say that, even at best, such ideas are unworkable. Whatever plan Washington came up with would most likely be countered one way or another by computer users.

Evan Hendricks, editor and publisher of the biweekly Washington newsletter *Privacy Times*, says that while Congress and law enforcement agencies might impede the development of encryption or drive it underground, he doesn't believe they could outlaw it entirely.

Eventually, Hendricks says, the use of encryption will become commonplace regardless of the government's wishes.

"It will catch on," he says. "It's just a question of how much time it will take." ●

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# Bewildered By Bandwidth?


For many people, bandwidth is a confusing and unfamiliar term. You may have heard it in passing, but didn't understand exactly what it is and how it affects you. The truth is that bandwidth can be a vague and confusing term. But this compilation of definitions, facts, and information will give you a chance to grasp what bandwidth is.

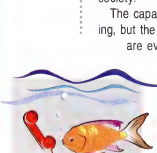
**Bandwidth** is the capacity of any single channel of a system to transmit data. In the rawest of forms, bandwidth is communication capacity.

Imagine bandwidth as the water pipes running through your home. The pipe carrying water within your home is relatively small compared to the pipe that carries water to your home. Both pipes use faucets to control the amount of water passing through them. The pipes and faucets can be compared to bandwidth.

In the telephone, fax, and modem industries, bandwidth is a key concept. In these industries, the transmission lines (pipes) carry data (water). The lines use regulators (faucets) to control the amount of information passing through them. Just as a larger pipe can carry more water, a larger communications line can carry more information. Larger pipes have a larger bandwidth.

Although we don't often hear of bandwidth, we use it every day. For example, you depend on bandwidth every time you call a friend on the phone. When you connect to an online service, you're using bandwidth. When your 12-year-old daughter downloads games from a bulletin board system, the games are transmitted with the use of bandwidth. Faxing a letter to your senator is made possible by bandwidth. In fact, bandwidth has become a necessity in today's society.

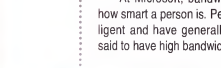
The capabilities of bandwidth today are amazing, but the hopes of what it will do in the future are even more astounding. Here are some facts that may surprise you.



• In 1956, undersea copper cables could handle up to 36 simultaneous two-way conversations. Increasing bandwidth using new optic fibers will make it possible for more than 300,000 calls to be transmitted at one time.

• Because of new technology allowing data with different frequencies to travel on the same transmission line, Bell Labs recently put 300 billion **bits** of information down a fiber optic cable in one second. (A bit is the smallest unit of computer data.) This is the equivalent of 18.75 million pages of double-spaced text.

• At Microsoft, bandwidth is used to describe how smart a person is. People who are super-intelligent and have generally broad capabilities are said to have high bandwidth.



• When AT&T began its first long-distance fiber optics communications operation in 1983, the transmission speed was 45 million bits per second. Today's fiber optics cable system operates at 3.4 billion bits per second.

• AT&T fiber optics cable systems are designed to transmit information so accurately that the maximum bit error rate is one word for every 13 million. If the Encyclopedia Britannica were transmitted, there would be no more than four words in error.

• AT&T's Worldwide Intelligent Network has 2.75 billion miles of transmission lines connecting hundreds of pieces of equipment that have to work together simultaneously. A new timing standard technology, called Stratum Level One, lets these systems communicate without missing a beat. In fact, the timing is designed to miss only one second every 33,000 years.


• The Encyclopedia Britannica contains 44 million words. If we use ACCUNET T155, one of AT&T's most advanced data services, it would take 15 seconds to send the contents of the encyclopedia around the world.

• Someday, bandwidth will be great enough to support a complete multimedia interaction with your computer. Bandwidth will enable computers of the future to communicate through voice, data, video, and hand motions.

• Video phone and interactive video applications such as virtual reality games require up to 1,000 times more data throughput than a conventional phone call.

• Scientists at AT&T Bell Labs predict that, by the year 2000, it will be possible to transmit one trillion bits per second. This would mean you could transmit the equivalent of all the world's television channels at once or all the words in the Library of Congress in less than four minutes.

Overall, without new bandwidth technology, phone lines would be unable to handle the vast number of calls taking place at one time, and it could take hours to download and transmit information. Bandwidth lets these things happen instantaneously and someday will allow scientists to design a computer that greets you in the morning and responds to your every motion. ●

*by Kirsten Bernthal and Corey Russman*

*Special thanks to AT&T representatives Albert Chu and Donna Cunningham, Larry Hancock of Hayes Microcomputing, Newton's Telecom Dictionary, and The IBM Multimedia Handbook.*

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## Operating Systems

**Q:** *I just installed the MS-DOS 6.22 upgrade. Afterward, an overlay came on-screen when I started Windows 3.1 saying, "VSAFE Program is not loaded. You must load VSAFE before starting Windows." Why is this? Do I really have to load VSAFE? How do I load it if I want to?*

**A:** Probably something on your "LOAD= "or "RUN = " line of your Win.ini file is telling Windows to start the Windows version of Microsoft AntiVirus. If you have Mwavtsr.exe loading on one of these two lines, then you also need the DOS portion called VSAFE loading from DOS. VSAFE is a background virus checker that's in memory while you're in Windows; Mwavtsr.exe is the Windows portion, which allows the messages about virus activity to pop up in Windows when needed. But MWAVTSR won't run without VSAFE first being loaded in DOS. You can either add the line **loadhigh c:\dos\vsafe** to your Autoexec.bat file. Or, you can remove the portion of your "LOAD=" or "RUN=" line that refers to Mwavtsr.exe to get rid of the error message. As to whether you need an antivirus program, read the other questions about viruses below.

**Q:** *In the April 1995 Q&A you covered some features of the SmartDrive disk cache. I tried typing* ***smardrv /s*** *at the DOS prompt, which is supposed to give me information about how my SmartDrive is set up and running. But, instead of a report, I got the message "VSAFE Warning. Smartdrv.exe was changed. Stop? Continue? Update?" What gives? Is it safe for me to continue?*

**A:** You have the VSAFE antivirus program running. A virus—even a virus already in your computer—can only become active and "breed" when you run the program in which it's hiding. To protect you, VSAFE examines every program or utility you're about to run for evidence of virus infection. Basically, it does that by comparing the way the file "looks" now with the way it recorded that file last time VSAFE examined it (which could have been months or years ago). If a virus *had* gotten inside a program, such as SmartDrive, VSAFE notices that the file is different, becomes suspicious, and pops up the warning you're seeing. Now, unfortunately, if you or a program have installed a new and different (but perfectly good and uninfected) version of SmartDrive (or any other program), and VSAFE wasn't properly informed of the change, it will be equally suspicious of this harmless, updated file. Such false alarms are common. If you think there's no way you could have a virus (see the other questions below on this topic) in your computer, tell VSAFE to "update" its records; once you do that the message won't come back. If you're not sure, say "stop" and SmartDrive won't run, thus robbing the virus of the chance to activate and spread. VSAFE works in conjunction with MSAV. To learn more about them, go to a DOS prompt and type **help msav** and **help vsafe**.

## Utilities

**Q:** *We haven't joined Prodigy or CompuServe because of our concern about getting viruses on our computer. We've heard that the information highway is easily accessible to someone wanting to transmit viruses into other computers. Can we get a virus in our computer just by connecting to an online service? Do we need a virus checker? Are viruses often transmitted on electronic bulletin boards?*

**A:** Your fears are out of proportion to reality. Computer viruses can infect your computer only if you actually *run* a virus-infected program on your computer, or if you use a virus-contaminated copy of an operating system to start your computer. Furthermore, when you're connected to an online service the flow of files into your computer from the service (contaminated or otherwise) is totally under *your* control. Even if we knew your account numbers and password, it's highly unlikely that we could use that information to "force" a virus into your computer; files only get into your computer from online services when you choose to log on, *and* you decide to download a file.

On the other hand, stories you hear about someone putting a virus into, say, a computer connected to the Internet, are a different situation. These are the computers of the few people who have voluntarily set up their own computers to *let* other folks dial in to retrieve and leave information. To set up your computer that way is an expert job; as a beginner you couldn't set that up if you tried, and you definitely can't set your computer to allow such unlimited outsider access just by joining America Online, CompuServe, or Prodigy. Furthermore, you could deliberately download virus-contaminated programs into your computer all year and they would be harmless and dormant until someone actually ran one. You also could insert virus-contaminated floppy diskettes in your computer without harm if you only "read" data off them or "look" at them with DOS or File Manager. (Folks with Macintosh computers aren't so lucky in that respect. Since a Mac pulls in a floppy diskette and actively "runs" it as soon as you insert it, every diskette put in a Mac could infect a Mac—regardless of whether the user installs or runs the program.)

Inserting a contaminated, "bootable" DOS (or game) diskette, closing the drive, and restarting your computer with the strange disk (rather than off its own DOS from its own hard drive) is a different story. In fact, that's one common way virus are transmitted. That works both ways, too: If you take your clean, virus-free utility diskettes to a friend's house to help him

## Utilities

restart his malfunctioning computer and you put them into his virus-infected computer, under certain conditions his computer, once running, can infect your diskettes. Then you take them home or to yet another friend's computer and the chain of infection expands. Of course, putting a write-protect tab on your diskettes will protect you from that hazard.

As for how common viruses are on electronic bulletin boards: They are rare. On the commercial online services they're even rarer because these services check files in their system for virus contamination. One of our writers who's also a business computer consultant says that he's run into five cases of computer virus infection in 10 years on about 500 computers, and not even one was picked up from an online service.

Do you need a virus checker? First off, they are good but imperfect. Second, if you don't download and run programs from online services, don't bring pirated or copied software or shareware from unknown origins into your computer, and don't let others boot up their DOS or game diskettes on your computer, it's highly unlikely you'd ever get a virus. (Commercial, sealed programs are rarely infected.)

Finally, remember that if you do frequent, total backups of your system, even a destructive virus is a nuisance rather than a catastrophe. By the time you discover the virus, it's probably also contaminated your backups. But, once the virus reveals itself by, say, erasing your data, then you know it's there. You can restore your programs and data from your most recent backup (virus and all), then use a virus checker to remove the virus before it can reactivate itself.

**Q:** *Do I need an uninstaller program for Windows? I use the DELETE and DELTREE commands. Am I doing something wrong?*

**A:** Removing Windows programs with DELETE and DELTREE is like trying to remove incumbents from Congress without the support of a major political party—it can be done if you really know what you're doing, but it's not easy. Windows programs hide little pieces of themselves all over your computer in unexpected places. If you're lucky, the worst that an inexpert install will do is leave hidden "leftovers" on your disk, costing you a little hard drive space. If you're unlucky, and do a lot of uninstalling, a heavy-handed uninstall with DELETE and DELTREE will cost you a great deal of disk space and cause system misbehavior. (For more information on uninstalling programs, and software that will help you do that, see "Cleaning Your Dirty Windows" in the June 1994 issue of *PC Novice* and the recently published *PC Novice Guide To Better Windows* special issue.)

## Multimedia

**Q:** *In the article "Installing Software" in the May 1995 issue, you said "CD-ROM programs install only files they need to operate. The majority of files remain on the disc." Please explain.*

**A:** Whoops! Never say "always." We should have said, "In many cases . . . ." We were talking mostly about the kind of CD-ROMs that have, as their main content, a massive amount of information or pictures. For example, encyclopedias, nationwide phone books, maps of every street in the U.S., font collections, or games with a very large amount of realistic scenery, simply have too much information to fit on a hard drive. The listing of residential phones and addresses occupies about 500GB, while the hard drive on a very new PC might be about 1GB (1000MB). When you install such a fat "informational" CD-ROM, it installs onto your hard drive a small program (i.e., 2MB) that lets you access and read the information off the disc. That means that when you run such a program, the disc has to be popped into your CD-ROM drive. On the other hand, some CD-ROMs are simply programs—even a "big" program is rarely more than 50MB, and it wouldn't be difficult to install it all onto your hard drive. In that case, the program is being sold on a CD-ROM rather than on diskettes partly for the convenience of the manufacturer (it costs them less and is harder to illegally copy) and your convenience (the CD-ROM is less vulnerable to damage and you don't have to feed the computer dozens of installation diskettes).

Here's where it gets more complicated: While you could install a 50MB program on your 300MB hard drive, that's still quite a bit. Why not leave most of the program on the CD-ROM and put just enough of it in your hard drive to start it up? Or why not leave on the disc the modules of the program you don't use often? Many CD-ROMs offer such options during installation. The upside is that you save disk space; the downside is that you can't run that program without the disc in the drive, and it may load much slower. Finally, some CD-ROMs are partly program *and* partly massive information collections. An example is *CorelDraw.* Even if you elect to put the entire program on your hard drive, you still have to decide if you want to put about 300 optional fonts on your hard drive (see next question), and it always leaves about 400MB of clip art on the disc. Lastly, there are a few CD-ROM-based programs that *must* install all or virtually all of their files onto the hard drive or they simply won't work. One example is the CD-ROM version of Windows 95.

## Design/Paint Programs

**Q:** *In CorelDraw 4.0 it seems that during installation I installed the fonts that came with the program to my D: (CD-ROM) drive. Now, whenever I use any program that uses any of those fonts, I have to leave my CorelDraw disc in the CD-ROM drive. I don't want to do that because sometimes I want to play music in my computer's D: drive while working on the computer. What can I do?*

**A:** When CorelDraw (and many other CD-ROM-based programs) installs, it gives you the choice of how much of the program and its accessory files (clip art, etc.) you want to install on the hard drive and how much you want to leave on the disc. You didn't really install the fonts on your D: drive—they were always there. It's just that you *didn't* tell Corel to install the fonts onto your hard drive. Leaving stuff on the CD-ROM saves hard drive space, but is sometimes less convenient and may run slower. Reinstall CorelDraw and tell it to put all of its fonts on your hard drive. Remember that Corel's 200+ font files will occupy more than 8MB of hard drive space if you install them all.

## Word Processing

**Q:** *I'm confused about word processor file format conversions. What is the procedure to convert or import or export from different file formats? Sometimes I try to use documents from one word processor inside a different word processor and all kinds of weird characters such as "|—__ß" come up. Are there some programs to help with this?*

**A:** While most word processors can automatically load up and read the files of other brands, most major word processors will let you "import" files from and "export" files to some other kinds of word processors. We can't tell you the exact procedure that you need because you didn't tell us which word processors you're dealing with. We can tell you that if you don't do some particular steps to "tell" your word processor that you want it to "import" rather than "open" a file, you'll get the gibberish you're seeing. Look up "import" and "export" in your word processor's online help or manual—the process generally isn't difficult. The only catch comes if, say, you want to import a file from *Ami Pro* into *Microsoft Word* and Word doesn't have an import option for Ami Pro files. You have three options:

1. You can go into Ami Pro and see if it offers the option to "export" to Word (in this example, the answer is "yes") and handle the conversion on that end.
2. If Ami Pro didn't let you export to the particular format you needed, you could have it export the file to a common word processor format (such as *WordPerfect 5.1 for DOS*). You can be virtually certain that the other word processor can import from a popular format such as that.
3. You could buy a conversion program (such as *Word-For-Word* from MasterSoft, 800/624-6107).

In addition to the few cases where you would *have* to have a conversion program, there are some other plusses. For one, such converters can convert dozens of files simultaneously instead of one at a time. For another, they sometimes do a more perfect conversion (preserving all graphics, italics, margins, etc.) more accurately than a built-in "import."

**Q:** *I use my word processor to make changes in my Config.sys file. Lately, when I tried to bring up Config.sys to work on it, I couldn't see it. Using Windows File Manager, I saw that the Config.sys file in my \AMIPRO\DOCS directory is missing. Is there any way to restore it there? My word processor is Ami Pro 3.0*

**A:** Whoa! Slow down here. First off, we don't recommend using *any* word processor to edit startup files such as Config.sys, Autoexec.bat, Win.ini, etc. One problem is that those files are plain DOS or ASCII files, while word processors normally save files in more complex forms that will make the startup files useless. First, if you're editing a simple startup file in a word processor, you can easily (and accidentally) save your changed file in word processor format instead of DOS format. Second, every word processor has a "default" directory—a favorite place it likes to save its document files—and that place is *never* where the startup files *should* go. In Ami Pro's case, that default directory is usually C:\AMIPRO\DOCS. And it's all too easy (even if you don't save the modified file in the wrong format) to save your newly changed Config.sys in that default directory instead of where it really belongs: It belongs (and probably is) in the C:\ directory (also called the **root directory**). Even if you managed to put a copy of Config.sys in your C:\AMIPRO\DOCS directory, it would be absolutely useless there.

You need to learn how to use Windows Notepad in the Accessories group, DOS' EDIT command, or some other simple editor for working on Config.sys and other system files. One such tool for that is called SysEdit. To start it:

1. Go to Program Manager or File Manager.
2. Open the File menu and click on the Run option.
3. In the Run dialog box, type **sysedit** and press OK.

SysEdit should start running. It will open cascaded "editing windows" showing Config.sys, Autoexec.bat, Win.ini, and System.ini—all ready for changes. SysEdit is particularly useful because often when tuning your system, you may need to make changes in several of these startup files. By the way: We always recommend making spare copies of startup files onto a floppy diskette, particularly just before you make new, untested changes in the original copies on the hard drive.

## Update

In last month's Q&A, we accidentally reversed two words when answering the question, "What's the difference between a differential and incremental backup?" If we confused anyone, we regret it. Most of our answer was correct as is but one section reads: ". . . With differential backups, if you hadn't run a full backup in four months, you'd have to keep four months worth of daily incremental backups. In contrast, an incremental backup catches everything since your last full backup, even if that last full backup is, for example, four months old."

It *should* have said, ". . . with *incremental* backups, if you hadn't run a full backup in four months, you'd have to keep four months worth of daily incremental backups. In contrast, a *differential* backup catches everything since your last full backup, even if that last full backup is, say, four months old."

Our main point was and is that the differential and incremental type backups offer ways to keep your system completely backed up without having to back up the whole darn thing each day.

A "*diff*erential" backup backs up only those files added or changed since the last *full* backup (that is, it looks for the *diff*erence). A daily incremental backup typically backs up only the files added or changed on *that* one particular day.

Though you still need an occasional full backup, running a quick differential backup frequently (ideally daily) is an easy way to get total protection. *Differential* works best for *most* folks because with your small, up-to-date differential backup diskette(s) together with your last full backup (even if it's four months old) you have *total* protection; every piece of lost data or programs could be restored to its current state. ●

**Get straight answers to your technical questions. Ask PC Novice! Send your questions to: PC Novice Q&A, P.O. Box 85380, Lincoln, NE 68501. (Volume prohibits individual replies.)**

# GLOSSARY
## Of Terms

**Bandwidth—**The capacity of any single channel of a system to transmit data.

**BIOS—Basic Input/Output System.** A routine stored in ROM (read-only memory) that controls communication between the PC and its hardware.

**Bit—**The smallest unit of computer data, represented either by a 1 or 0. Eight bits form one byte, which represents a single character.

**bps—Bits Per Second.** Refers to the speed at which a particular modem can transmit data. Divide the bits per second by 10 to get an approximate idea of how many characters per second the modem is transmitting.

**Bus—**The copper tracings on the surface of the motherboard that transmit data between computer components.

**Compression—**Methods for making computer files smaller, often by substituting long, repetitive strings of characters with shorter abbreviations that can be uncompressed into useable form later.

**Disk Cache—**A memory area containing information read from or waiting to be written to a disk. Access is faster in the cache than a disk since stored data can be read quicker.

**DRAM—Dynamic Random-Access Memory.** A form of semiconductor RAM in which the processor and video circuitry share the same control pins on a RAM chip. DRAM stores information in integrated circuits containing capacitors, which need to be recharged continuously.

**Executable Files—**Files that can be run as programs and are identified by the .EXE file name extension.

**File Formats—**Standardized techniques for storing data, such as images, sounds, and text, in ways that a variety of computers can understand.

**Flash Session—**A specified time when your computer automatically goes online.

**GIF—Graphic Interchange Format.** A data compression format used for graphic images that exactly represents every part of an image. Files compressed in this format are known by their .GIF extension.

**Graphical User Interface (GUI)—**A graphics-based interface that lets you access programs by pointing to icons, buttons, and windows rather than typing strings of commands at a command prompt.

**Home Page—**Also referred to as a Web server or Web page, a home page provides a link between documents and loads automatically when you start a program in the World Wide Web.

**I/O Port—**A connector on the computer into which you plug a cable from another device and through which information can flow between the two units.

**ISA—Industry Standard Architecture.** ISA allows a number of adapters to be added to a system by way of inserting plug-in cards into expansion slots on the motherboard.

**JPEG—Joint Photographics Experts Group.** A compression format for graphics files with the file extension .JPG.

**Modem—**A device that lets a computer communicate and exchange information with other modem-equipped computers over telephone lines.

**Motherboard—**The main circuit board of the computer to which all other components are connected or directly attached.

**Parallel Port—**This port accepts cables that have parallel wires, letting data flow through the cable at a high speed. Parallel ports can transfer a complete byte of data at a time while serial ports can transfer only one bit.

**PCI—Peripheral Component Interconnect.** A standard design for computer motherboards and expansion slots that can transfer 32 or 64 bits of data at one time. Its expansion slots are compatible with either ISA or special PCI expansion cards.

**RAM—Random-Access Memory.** The temporary memory storage area used to load program instructions and store files currently in use. Unless a file is permanently stored on a hard drive, diskette, or other storage medium, changes to information in RAM will be lost when the computer is turned off.

**Serial Port—**The socket where cables attach a serial device, such as a printer or modem, to the PC. Only one bit of data can be transferred through this port at a time while parallel ports can transfer an entire byte.

**SIMM—Single In-line Memory Module.** Small circuit boards that accommodate memory chips; smaller than traditional memory hardware, they use less space on the motherboard.

**VL-Bus—VESA Local Bus.** Local bus architecture developed by the Video Electronics Standards Association. Up to three VL-bus slots can be built into a motherboard, and bus mastering is allowed. (Bus mastering is a processing technique used by certain adapter cards, independent of a computer's CPU.)

**VRAM—Video Random-Access Memory.** A special type of DRAM that's used in high-speed video applications. With VRAM, the processor and video circuitry use separate control pins on RAM chips. This lets the video circuitry access memory bit by bit.

**World Wide Web—**A network-wide, menu-based, software program providing links to other information sources throughout the Internet.

**ZIP—**A common compression format used mainly for executable files. A zipped file will have the extension .ZIP.

# 800 Reader Service

To request additional information on the following products and services advertised in *PC Novice*, call the number provided by the advertiser. When calling the manufacturer, please mention *PC Novice*.

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IFC=Front Cover IBC=Inside Back Cover BC=Back Cover

# Letters To The Editor

Dear *PC Novice*:

This letter of appreciation is long past due. In August 1993, I purchased my first computer system using knowledge gained from about one year of *PC Novice* as my guide. In less than two years, *PC Novice* has provided me with the skills and confidence to progress through system upgrades including a larger hard drive, more RAM, a faster CD-ROM drive, and most recently, upgrading my flash BIOS and replacing my DX2-50 CPU with a DX4-100 CPU. Thanks for the outstanding effort; I look forward to more of the same. Also, expanding Q&A to a multipage format was a great idea.

Vernon Craig/Flint, MI

Dear *PC Novice*:

Parents, not government, are responsible for protecting their children—through education, not censorship—from unwanted images ("Online Slime," July 1995). Anyone who has thoughtfully considered the issue will realize that the EFF's position is much more sensible than Senator Exon's.

S.L.C. Weisman/La Crescenta, CA

Dear *PC Novice*:

In your July 1995 issue, you present several articles on the topic of censorship on the Internet. The theme throughout your magazine was that the government should step in and pass laws regulating the content of the Internet. I agree wholeheartedly that censorship is needed on the 'Net, but I feel strongly that the government should not get involved. Instead of government regulation, I advocate self-regulation. Disgusting materials are not forced upon any Internet users; you must seek them. If you don't want to see a certain type of material, don't search for it. Educate your children about what materials you do not want them to access. Set ground rules where they can explore and what they can do on the 'Net. Surf the 'Net with them, and make it a family experience. The Internet is a truly wonderful method of communication, learning, and fun. With a few simple rules, it can stay that way for you and your family to enjoy.

David Czehut/Crosswicks, NJ

**Letters to the Editor should be sent to: *PC Novice* / P.O. Box 85380, Lincoln, NE 68501-5380. Letters may be edited for clarity or space.**

# FAX FEEDBACK


PC NOVICE Presents...

## Topic of the month . . . Software Flaws

In upcoming issues of *PC Novice*, we will be doing a series of articles on software flaws and design limitations. We want to know if you have come across any flaws or limitations in products you have used. Feel free to mention suggestions for improvements in a product's design, things that a product is supposed to do but doesn't, or even things you just wish it did. We will be sharing the flaws and suggestions you contribute with our readers in the next several months.

*What You Said . . .*

Look for the articles "It's In The E-mail" and "10 Ways Your Family Can Use E-mail" in this issue of *PC Novice*. We used the responses from our July Fax Feedback to determine the topics that are most important to our readers.

To show our appreciation for your comments, we will randomly select one Fax Feedback participant to receive a *PC Novice* T-shirt.

If you do not have access to a fax machine or would prefer to mail your response, please address your comments to:

**Fax Feedback**
***PC Novice* Magazine**
**P.O. Box 85380**
**Lincoln, NE 68501-5380**

Fax Number
**402-479-2104**

**We want to know if you have found flaws or design limitations in any major software packages (*Word, WordPerfect, Lotus 1-2-3, Excel*, etc.). Limitations include any specific ways in which you feel the product design should be improved. Please list as many products as you wish. Attach an additional sheet if necessary.**

***Product #1:*** _____ *Version:* _____
*For use with (circle one):* Mac or PC
Flaw or Design Limitation: _____

_____

What is your level of experience with this product?

| *Beginner* | | *Intermediate* | | *Expert* |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

***Product #2:*** _____ *Version:* _____
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Flaw or Design Limitation: _____

_____

What is your level of experience with this product?

| *Beginner* | | *Intermediate* | | *Expert* |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

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*For use with (circle one):* Mac or PC
Flaw or Design Limitation: _____

_____

What is your level of experience with this product?

| *Beginner* | | *Intermediate* | | *Expert* |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

We look forward to hearing from you. Thanks for your time!

**Name and address:**


*This is optional, but necessary to be included in the drawing.*

Name: _____

Address: _____

Phone: ( _____ ) _____

# Editorial

COMMENT

You're excited. After putting up with your old 386SX for years, you've decided to take the plunge and buy a powerful new computer system: a Pentium with all the latest multimedia gadgetry. You're looking forward to trying out Windows 95, learning about Beethoven's Ninth Symphony, and working with 3-D spreadsheets. You're convinced your new computer will let you get twice as much work done in less than half the time.

But what about your old system? The one that cost you as much—or more—than your new one? It makes you wince a bit to think how expensive a paperweight it's going to become once you've got your new system up and running. Too bad computers aren't sold like cars, where you could trade in your old model on a newer one.

Hmmmmmm. Come to think of it, why aren't they?

Just think of the benefits that would accrue if computer retailers allowed for trade-ins. Users would be more apt to upgrade if they knew a ready market existed for their old systems. They would also upgrade more often. Technological advances would increase at a faster pace, since one of the main impediments to advancing technology is marketplace inertia. (You can't sell new equipment if no one's buying.) New markets would develop, as computer newcomers who previously could not afford to buy new systems would instead purchase used ones.

A number of people have called computers the next "home appliance." Actually, computers have more in common with cars than home appliances—at least in terms of how they should be sold. Appliances advance technologically at a glacial pace compared with computers. At least automobiles have new models every year. (When was the last time someone you knew rushed out to buy the latest washing machine or refrigerator because of some new whiz-bang technology?) Computer dealers should take their lead from automobile dealers and begin offering trade-in allowances for older models.

**The first retailer to set up a "Used PC" lot will reap an incredible competitive advantage over everybody else selling computers.**

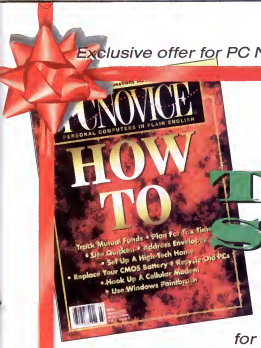
The first retailer to set up a "Used PC" lot will reap an incredible competitive advantage over everybody else selling computers. We're talking about national retail chains, not the occasional mom-and-pop used PC stores found in some cities. Wouldn't you rather buy a computer from someone who would give you a few hundred dollars' worth of trade-in allowance for your old one? That sure beats having your old PC take up space in the basement. Let Best Buy or Sears or Computer City or any other computer retailer be the first to set up and promote trade-ins for used computers, and you can bet that their system sales will hurdle right over their competitors'. (We can see the ads now: "The 1996 models are in, and we've got plenty of 'em! Trade in that old bucket of bolts for the latest technology, and find out what it's like to have a 686 under the hood. We'll give you top dollar for your old system and throw in a new joystick for free!")

Some smart retailer will recognize this golden opportunity, and perhaps even start up a separate distribution chain for used PCs. (Just think of all the used car lots in the world.) Of course, there will have to be a used software section in the stores as well. After all, the people who buy those older computers will need programs to run. Maybe the stores also will have a PC junkyard department, to supply hard-to-find parts for really old systems.

By taking used PCs in as trades, and funneling the equipment off to the Used Computer Mart, the retailer can boost sales at the home store to repeat customers while drawing new customers into the world of computing.

Computer manufacturers only recently have begun to understand how to market PCs to the consumer marketplace. Concepts such as brand awareness, price sensitivity, and style may be familiar to makers of toothpaste and shoes, but it has taken years for PC manufacturers to adopt those ideas and begin applying them to their high-tech products. It's time for computer retailers to make similar adjustments, by adopting time-proven sales techniques from other industries. ●

*Exclusive offer for PC Novice subscribers:*

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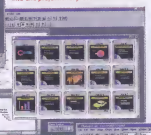

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